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DEPARTMENT OF THE ARMY FIELD MANUAL

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TECHNIQUES OF MILITARY INSTRUCTION



DEPARTMENT OF THE ARMY

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DEPARTMENT OF THE ARMY
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TECHNIQUES OF MILITARY INSTRUCTION

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CHAPTER 1

INTRODUCTION

1. Purpose

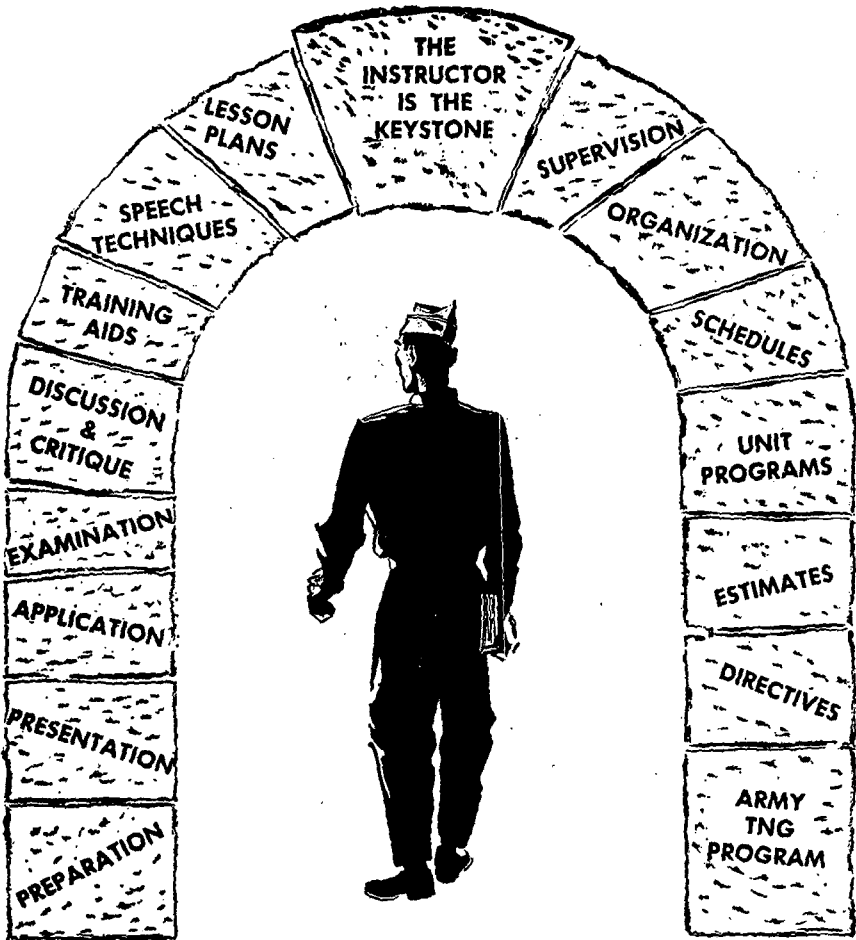
This manual is designed to assist Army instructors in teaching efficiently. All officers and noncommissioned officers must know how to teach. As specialists, they may have an excellent knowledge of some phase of the military profession; but in order to teach others, they also must know the best methods and procedures for imparting their knowledge. This manual presents specific methods and techniques of military instruction which will tend to insure successful teaching.

2. Scope

This manual contains principles and techniques for use in the instruction of Army personnel. It is designed also for use in the training of instructors. Recommended lesson outlines are included in the appendixes; these will help the military instructor to present a unit of instruction based upon the subject matter to which the outline pertains. Most of the illustrations in the manual are suggestions for training aids; these illustrations may be used in an opaque projector, traced on acetate and used with an overhead projector, or enlarged and used as charts. A check card applicable to all Army instruction is shown in appendix IV.

3. The Instructor's Role in Training

The combat success of the Army depends on the effectiveness of the instruction which individuals and units receive during training. The success of any plan for training will depend upon the soldier-instructors who present subjects to soldier-students. First-class instruction helps to produce a first-class army, and first-class instruction is the result of having well-trained instructors—instructors who know their subject thoroughly and know how to present that subject to others. The instructor is the keystone in the training arch (fig. 1).



THE TRAINING ARCH

Figure 1. The training arch.

CHAPTER 2

PRINCIPLES OF LEARNING

4. General

There are certain general principles of learning which military instructors must know and be able to apply in teaching. These principles are the basis for instructional methods and techniques.

5. The Nature of Learning

The desired outcome of all instruction is student learning (fig. 2). If students are no better equipped to do something at the end of a lesson than they were before, no learning has resulted from the instruction. Instructors must realize that *if the student failed to learn, the instructor failed to teach*. Instructors must accept responsibility for their men's learning and look first to themselves and their presentation for the cause of any failure.

a. Learning an Active Process. Learning can be defined as the process of acquiring new knowledge, skills, techniques, and appreciations which will enable the individual to do something that he could not do before. Notice that the emphasis is placed upon *doing*. Learning is essentially an active process; it is not passive absorption. Students must be given purposeful, worthwhile work to do; they must be kept active both mentally and physically.

b. Learning Through the Senses. Learning can also be defined as the change which takes place in the individual as a result of his mental and physical responses to stimuli. The five senses are the channels through which the individual is stimulated; through these senses—sight, hearing, touch, taste, and smell—he makes contact with things about him. As a result of these contacts, he makes responses which lead to the acquiring of new knowledge, habits, or attitudes. It is the instructor's responsibility to provide learning situations which make maximum use of the senses and which produce the desired responses. Lessons which appeal to the greatest number of senses are the most effective. This is one reason why training aids and demonstrations must be used as much as possible.

c. Types of Learning. In learning, the student may gain knowledge, abilities, or emotionalized controls. *Knowledge* or understanding often is designated by such terms as ideas, concepts, meanings, facts, principles. *Abilities* refer to mental and physical abilities—specific habits, skills, and the ability to adapt knowledge to the solution of problems. *Emotionalized controls* include the attitudes, ap-

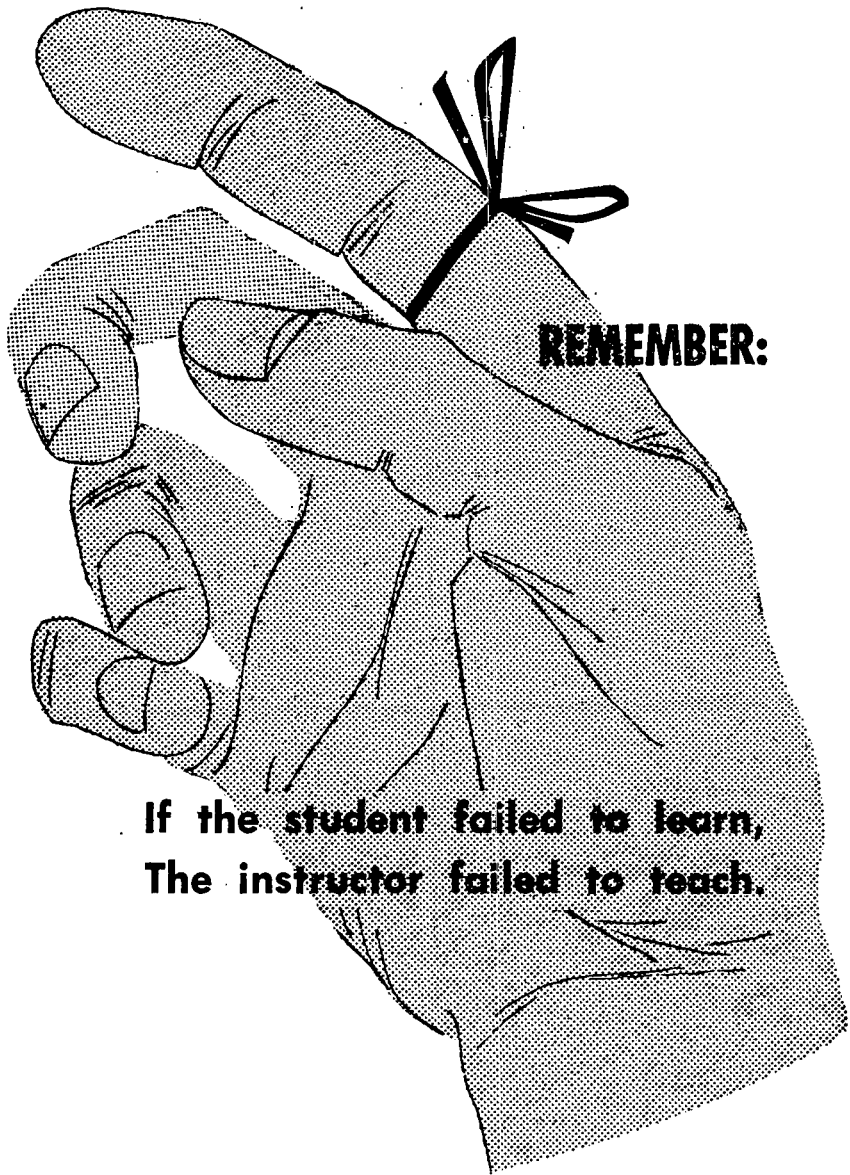


Figure 2. The instructor is responsible for learning.

preciations, interests, ideals, and habits of conduct which are necessary to give value to learning; these controls are sometimes referred to as appreciations. The instructor must constantly be alert to the various types of learning which are included in the training of the soldier.

6. Basic Principles of Learning

The six principles of learning are generalizations which describe the conditions under which learning takes place. They serve as guides

to the instructor in his selection and use of teaching methods, devices, and techniques. These principles are mutually supporting and all apply to each period of instruction; they are:

a. Motivation. Learning is more efficient when the student is motivated properly—when he is mentally and physically ready to learn because he knows the reason why he should learn.

b. Objective. Learning is more efficient when the student knows exactly what he is to learn and what is expected of him.

c. Doing. One of the most efficient ways of learning is by doing.

d. Realism. The more realistic the learning situations, the more efficient the learning.

e. Background. A student acquires learning only by building upon what he already knows.

f. Appreciation. The learning process is not complete until the learner has acquired the attitudes, appreciations, interests, ideals, and habits of conduct which cause him to apply his knowledge in the desired direction to accomplish the mission.

7. Motivation

Motivation is the conscious effort of the instructor to establish student motives which lead to sustained effort toward the learning goal. Motives create a desire to learn (fig. 3). Motivation is the very heart of the learning process and one of the instructor's most fundamental problems—since without motivation, students learn very little. The following are some of the techniques which instructors may employ to motivate students:

a. Show a Need. It cannot be assumed that men will recognize the importance of learning the lessons presented in a training program. Many important things may seem unrelated to the work of the soldier when he first hears of them. Instruction must include valid reasons for learning and an explanation of how the things taught will be used.

b. Develop an Intent To Learn. Before instruction is presented, the student must be made to realize that he is responsible for learning. It is not enough that men are physically present for training; they must be mentally prepared to learn the material to be presented. The instructor must check the class progress frequently and insist that each man apply himself. Men will learn more when they are made to feel responsible for learning.

c. Maintain Interest. Interest is essential if attention is to be secured and maintained. The use of personal force and enthusiasm, examples, and illustrations will help keep interest high. The more interesting the material can be made for students, the more readily they will learn it.

d. Encourage Early Success. Early successes are a motivating force and increase chances for further learning. An individual's success



Show a need

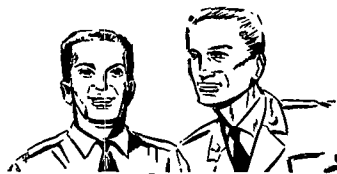


Develop an intent to learn



Maintain interest

PRINCIPLE OF MOTIVATION



Encourage early success

Figure 3. Principle of motivation.

tends to drive him to further effort and additional successes. For the normal person, achievement brings a certain amount of pleasure and satisfaction, and stimulates him to greater activity. During the early stages of a training program, instructors should have students work at some worthwhile activity that is planned so that the students can complete it successfully.

e. Give Recognition and Credit. Recognition and credit provide strong incentives for learning. Students desire, and have a right to expect, credit for work well done. Instructors must mention the good points of students' work and not dwell entirely on their mistakes. Start with favorable comments, then lead into suggestions for improvement.

f. Avoid Feelings and Emotional Responses Which Interfere With Efficient Learning. Feelings affect learning. Students who are angry, resentful, embarrassed, frightened, or otherwise emotionally upset, think about the source of their disturbance rather than the subject being taught.

g. Use Competition.

- (1) Friendly competition stimulates learning. Americans are known for the competitive spirit with which they enter into all types of activities. The desire for social approval, and the desire for the personal satisfaction to be derived from doing something better than it has been done in the past, are strong motives which should be given intelligent guidance by instructors.
- (2) Competition with one's own past record is one of the healthiest forms of competition. Instructors should encourage students to compete against and improve upon their previous records.
- (3) Friendly competition between two or more groups or teams brings about efficient learning. Instructors should take every opportunity to divide classes into groups and encourage them to compete. Group competition adds interest, encourages wholehearted participation, and affords valuable training in cooperativeness. If at all possible, one group should be pitted against another, rather than one individual soldier against another.

h. Use Rewards and Punishment. Rewards are powerful incentives. On the other hand, punishment is perhaps the least desirable form of motivation. The imposition of punishment which the students consider to be unjust or too severe may breed resentment, antagonism, and a failure to learn the subject with which punishment is associated.

8. Objective

a. Learning is more efficient when the student has known objectives toward which he may direct his learning efforts (fig. 4). He must know the objectives of each lesson, how the lesson fits into his overall course of instruction, and how the course of instruction prepares him for his job.

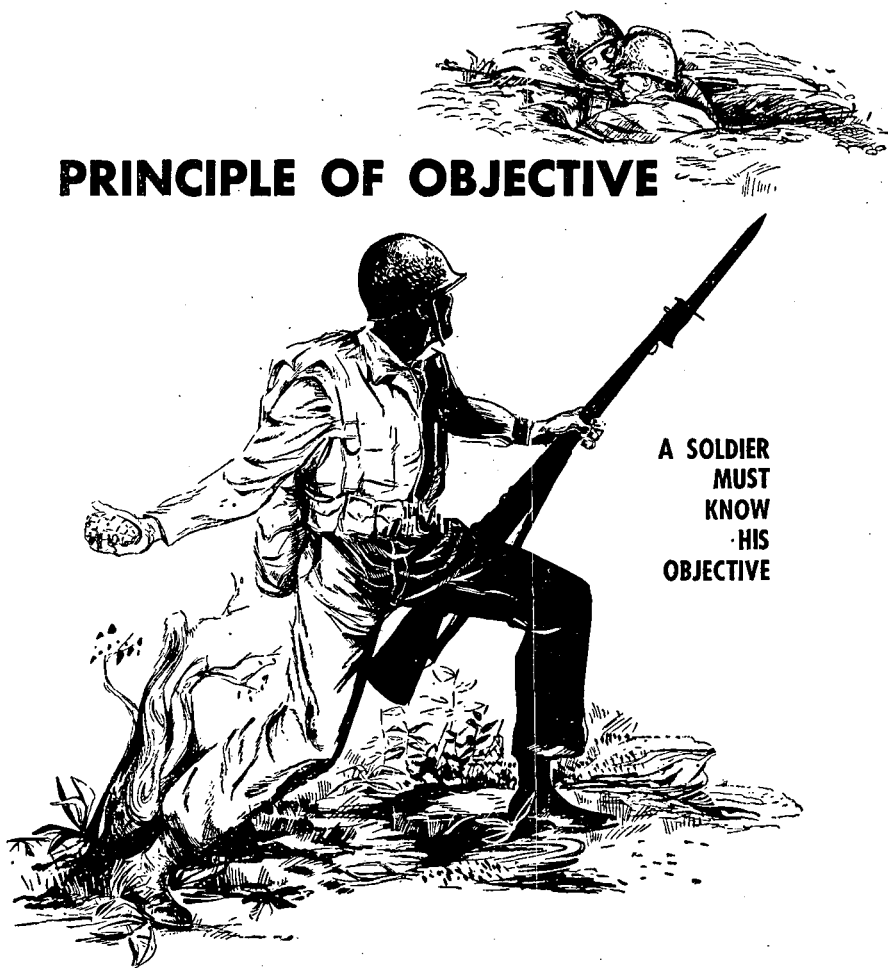


Figure 4. Principle of objective.

b. The lesson objectives and the standards expected of each student must be emphasized in the introduction to each lesson. The student must be told how each phase of his training is related to the whole program. Bit-by-bit learning, without an understanding of how it all fits together, is difficult and wasteful.

9. Doing

a. We learn by doing (fig. 5). Instruction must take advantage of the fact that we learn more of the things we do than of those we hear, read, or see.

b. To apply this principle to the learning of informational phases of a subject, the instructor must provide opportunities for student activity—thinking, talking, writing, and problem-solving.

PRINCIPLE OF DOING

"We learn by doing"



"Practice makes perfect"

Figure 5. Principle of doing.

c. In acquiring the physical ability to perform the many activities of a soldier, it is necessary that the learner experience each activity by actually doing it. Verbal directions, demonstrations, and various other forms of instruction help the learning process; but actual doing, repeated until proficiency is attained, is essential to complete the learning.

10. Realism

This principle requires constant consideration by the instructor to insure that learning activities in training approximate the situations in actual practice (fig. 6). Each lesson, or main point of a lesson, should be subjected to the test of these questions:



**MOST INSTRUCTION CAN BE MADE
REALISTIC TO THE STUDENT**

Figure 6. Principle of realism.

a. Is this the way this material will be used by the soldier in actual practice? Instructors must check their instruction to see that the material presented is realistic from the standpoint of its field application. However, during the introductory phases of instruction in a subject, the desire for realism should not be allowed to obscure learning. The fact that a soldier in combat may have to consult a paper map during a snowstorm while under enemy fire does not mean that preliminary instruction in map reading should be presented under similar conditions. Realistic obstacles should be introduced into practical work *after* a soldier has mastered basic principles and techniques.

b. Is my presentation realistic as far as the level of the class is concerned? Instruction beyond student comprehension is unrealistic; however, relatively difficult subject matter can be presented to classes of different levels if it is adapted to their specific needs and is explained in clear language. Instructors can make their instruction more realistic to the student by using such personal references as "Here's what this means to you," or "You will use this in this way."

11. Background

Learning is based on experience; new experiences are interpreted on the basis of past experience. An uncivilized native seeing an airplane for the first time may call it a "strange bird" because that describes the new object in the light of things familiar to him.

a. By applying this principle to instruction in the Army, instructors can explain many new things by using illustrations drawn from

the past experience of students and relating these past experiences to the new material. Resistance to the flow of electrical current through various gage wires is likened to the resistance of different diameters of pipes to the flow of water. An instructor who describes carburetion as "the atomization of combustible material to facilitate combustion of ingredients" may be entirely correct, but few students will get the full meaning from this explanation.

b. Since the past experience of all students is not the same, they do not all attach exactly the same meaning to an explanation. Instructors must select and present illustrations carefully so that all students will get the desired meanings. In early stages of Army training, instructors must draw illustrations from common civilian experiences. As training advances, more and more illustrations can be drawn from earlier phases of the training program.

c. Instructors apply this principle in the introduction to a lesson by reviewing previous instruction. This helps students to recall what they have learned previously. What has been learned in previous lessons makes up the students' background or past experience for the lessons to be presented. Instructors should consider the state of training of students, make reference to lessons already learned, and use these lessons as a foundation for their presentations.

12. Appreciation

a. Learning is complete only when the learner has acquired the attitudes, appreciations, interests, ideals, and habits of conduct which will enable him to apply correctly the things learned. This statement is of such importance in military training that it should be considered a fundamental principle for the guidance of instructors. The military instructor must not only concern himself with the teaching of skills and information which contribute directly to his lesson objectives; he must also be alert to the development of correct appreciations and attitudes which determine how effectively the soldier will apply the knowledge and abilities he has acquired in the training program. This principle emphasizes the fact that the instructor's real, ultimate task is to train men—not merely to teach subject matter.

b. Many of our training publications recognize the necessity for this principle of learning when they call for such training results as *aggressiveness, will to fight, initiative, resourcefulness, the spirit of the offensive*. These desirable ends are not taught directly; they are developed indirectly as a result of three basic factors:

- (1) Instruction which recognizes that these attributes are the byproducts of good teaching.
- (2) Leadership that emphasizes and contributes to the ultimate objectives of military training.

- (3) Carefully designed training programs that provide numerous realistic situations in which these qualities have the opportunity to develop.

c. To apply this principle in his teaching, the instructor must be alert to every facet of the students' development. He must recognize that his men learn many things from his instruction in addition to the material presented. He must set a good example; he must employ a positive attitude toward his instruction. Students are quick to pattern their reactions to the attitude of the instructor. The instructor must refrain from making incidental remarks and voicing personal opinions that do not contribute to the desired student attitude. The instructor should give advance thought to the desirable attitudes, appreciations, interests, ideals, and habits of conduct which may result from instruction, and make every effort to contribute to their development.

CHAPTER 3

FUNDAMENTALS OF MILITARY INSTRUCTION

Section I. THE STUDENT

13. Introduction

The fundamental elements of an instructional situation are—

- a.* The student.
- b.* The instructor.
- c.* The teaching process, which consists of the five stages of instruction:
 - (1) Preparation.
 - (2) Presentation.
 - (3) Application.
 - (4) Examination.
 - (5) Review and/or critique.

14. The Instructor Must Know His Students

To be successful, instructors must understand their students and the way they learn. As far as is possible, instructors should know their men as individuals, appreciate their learning problems, and make every effort to help each man learn. Instructors must see the course of instruction from the point of view of the learner and plan accordingly.

15. Characteristics Common to Most Students

Excellent rules for adapting instruction to the individual differences of students are given in FM 21-5. Most military students, however, have the following common characteristics:

- a.* With a few exceptions, they are mentally, emotionally, and physically mature.
- b.* Most men have a serious purpose and are eager to get the most from their training if they are motivated properly.
- c.* They are keenly interested in the practical applications of theory and knowledge. They judge instruction in terms of their needs and the demands of their jobs. They are interested in the *why* and *how* of what they are asked to do.
- d.* They are quick to appreciate and respect instructors who know their subject and who have the knack of effective presentation. They are equally quick to detect the incompetent.

e. Men vary in their physical characteristics, intelligence, general education, past experience, determination or desire to achieve, and emotional stability. Instructors must be aware of these differences and take them into account. However, most men are capable of mastering the essentials of military training if they are well taught.

16. Advice to Instructors

There are certain fundamental principles which instructors must follow if they are to be successful.

a. Never bluff to cover lack of knowledge. Instructors must know their subjects thoroughly; but even then, questions may arise to which they do not know the answers. If they do not know the answer, admit it; then find the correct answer and give it to the class as soon as practicable.

b. Never use profanity or obscenity. If you do, you lose dignity and class respect.

c. Never use sarcasm or ridicule. Since students are helpless to retort, they become resentful. When an individual is resentful, his mind is closed to learning.

d. Never talk down to a class. Make your class feel that you consider yourself fortunate to have acquired the experience and knowledge which you wish to share with fellow members of your profession.

e. Never lose patience. Slowness or inability to grasp a meaning may mean that the instructor has failed to teach, not that the student has failed to learn.

f. Remember that learning is acquired to insure success in battle. Use every opportunity to impress students with the *battle importance* of what they are learning.

Section II. THE INSTRUCTOR

17. Qualifications of the Good Instructor

There are certain qualifications which an instructor must possess if he is to do an effective job of teaching.

a. *Knowledge of the Subject.* It is obvious that the instructor must know his subject if he is to teach it to others. As far as possible, instructors should have both field experience and a thorough knowledge of the applicable training literature. An instructor makes a serious mistake if he assumes that field experience alone gives him sufficient knowledge to teach without further preparation and continuous study of training literature. Field experience should enable him to evaluate the material in training manuals and to present it in a manner which will be realistic to students. He should know more about his subject than he will ever have time to teach and, certainly, should be prepared to answer virtually any question on the subject.

b. Knowledge of Techniques of Instruction. A knowledge of how to instruct is a definite prerequisite to good instruction and is the reason for conducting instructor training courses in the Army.

c. Personality of the Instructor. A good personality is considered essential to success in all fields of endeavor in which people have to work together and become closely associated. Personality can be defined as the sum total of all of those things about an individual to which other people respond, either favorably or unfavorably. A good personality—one which gets a favorable response—is not some mysterious inborn quality. It can be developed by concentrating upon and improving specific features of the personality. Each instructor should observe other instructors whenever he can, and weigh their personality characteristics against his own. He should then strive to develop in himself those characteristics which contribute to successful teaching, and to avoid those characteristics which interfere with effective instruction.

d. Leadership.

- (1) Instructors who are good leaders can develop proper habits, attitudes, appreciations, and character traits in their students as well as teach the basic information required in the course. They will see that discipline is maintained and that students conduct themselves as soldiers at all times. They will maintain control of their classes and see that the classes run smoothly.
- (2) An instructor must have leadership ability if he is to manage a class in an efficient manner. This management includes detailed planning of the course, securing and distributing supplies and equipment, keeping records, reducing waste, adjusting the program to the needs of students, making reports, and a number of other administrative details which are necessary for effective teaching. Classes must be managed before they can be taught.

e. Professional Attitude.

- (1) The Army instructor must have a genuine and sincere interest in students and their success, in his subject and methods of teaching it, and in the specific training program to which he is assigned. To succeed, the instructor must have a sympathetic understanding of his students' problems and be fair in dealing with each individual.
- (2) The instructor who has the proper professional attitude will continually add to his store of knowledge and skills in his subject and make every effort to improve his teaching ability.
- (3) Everything an instructor says and does during classes, as well as the manner in which he says and does things, reflects his attitude toward his students, his subject, and the training pro-

gram. His attitudes have a tremendous influence upon student attitudes and morale, because students tend to adopt both the attitude of the instructor and his point of view toward the subject and the training.

18. How the Instructor Can Improve

Any instructor can improve himself by bringing about desirable changes in specific aspects of his qualifications; but he can do this only by constant effort. The fact that an instructor has taught for some time does not mean that he has made significant improvement, nor does the fact that an instructor is adjudged superior this year mean that he will be superior next year. Suggestions for improvement, as illustrated in figure 7, are—

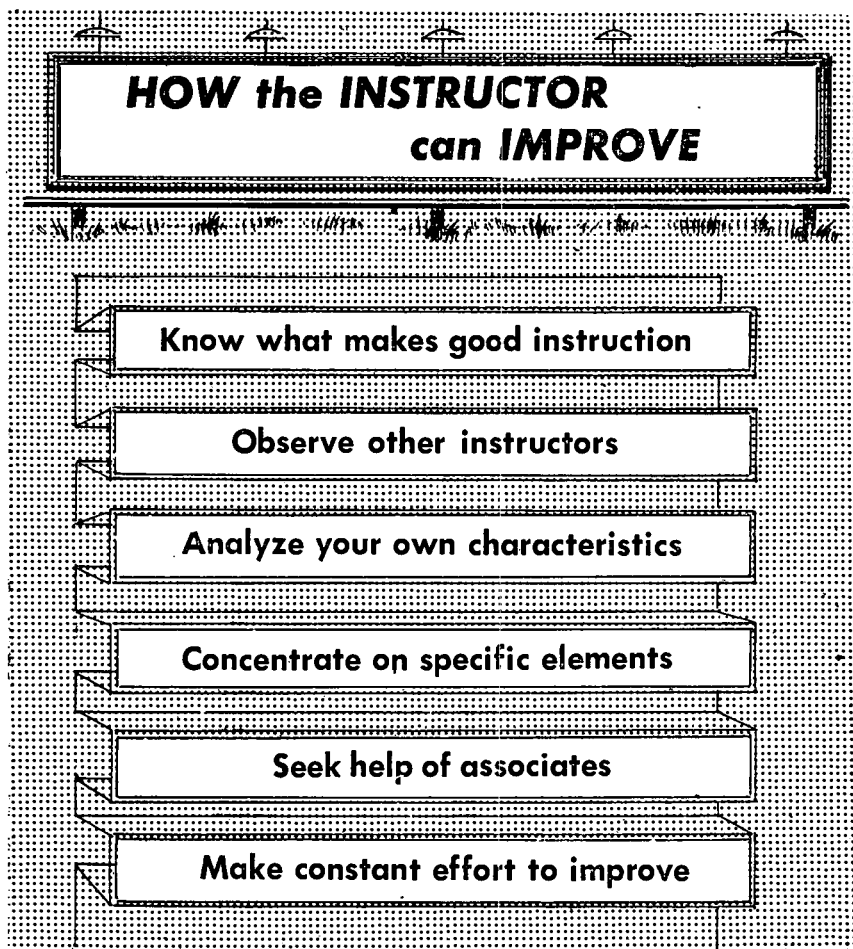


Figure 7. How the instructor can improve.

a. *Know What Makes Good Instruction.* In his efforts to improve, the instructor must start with an appreciation of the basic elements of good instruction. He must set certain standards for himself.

b. *Observe Other Instructors.* The instructor must maintain his own individuality while improving his technique. He should observe other instructors for the purpose of learning from them, but probably should not imitate even the most capable ones to too great an extent. Two highly competent instructors can have radically different personalities and use entirely different techniques, and both still be able to do a superior job of teaching. Instructors should determine what they can do well and then develop techniques based on their own outstanding abilities rather than on abilities which they admire but lack.

c. *Analyze Your Own Characteristics.* Self-evaluation and self-analysis are essential to improvement. The instructor should constantly attempt to evaluate his own teaching and analyze his own characteristics to find out just what his strengths and weaknesses are. Discover strengths and build upon them; discover weaknesses and correct them.

d. *Concentrate on Specific Elements.* Progress is made by concentrating upon specific techniques and working out a systematic plan for their improvement. A general attitude on the part of an instructor to "do good," while commendable, rarely brings the significant improvement desired; attention must be given to improving specific aspects of instruction.

e. *Seek Help of Associates.* An instructor cannot always evaluate his own work objectively. He should encourage others to criticize his instruction and should welcome their suggestions. Other instructors, assistant instructors, and supervisors can identify an instructor's strengths and weaknesses more readily than can the instructor himself.

f. *Make Constant Effort To Improve.* The instructor's attitude toward his work is best judged by the effort he makes to improve. After each lesson, the good instructor will ask himself how he could have done the job better. He will not be satisfied with anything but the best. Constant alertness in seeking the best methods to improve his men's learning is the most important single ingredient in the instructor's recipe for improvement.

Section III. STAGES OF INSTRUCTION

19. General

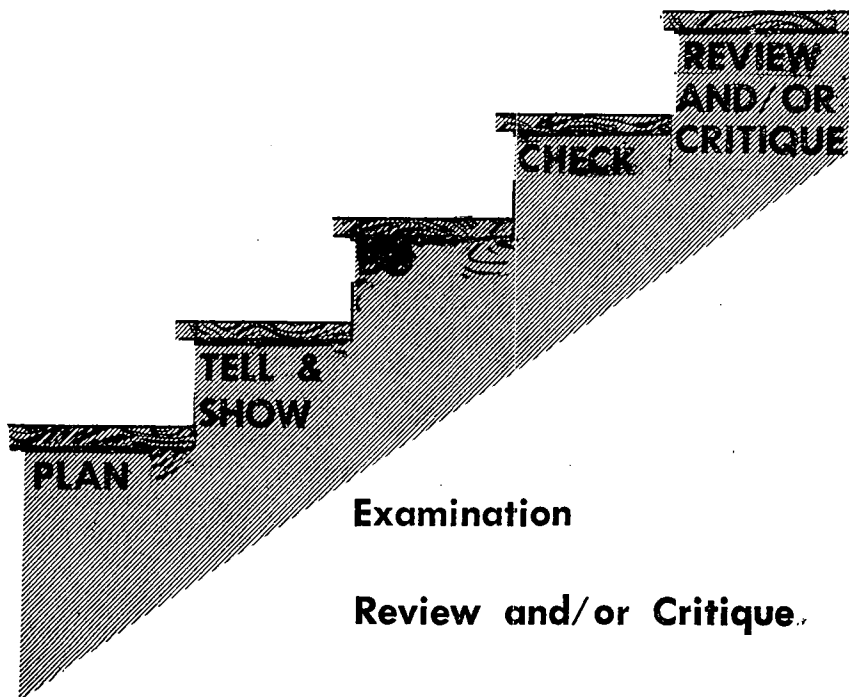
The process involved in teaching, which includes the five stages of instruction, is the foundation on which a single lesson or an entire subject is built (fig. 8).

STAGES OF INSTRUCTION

Preparation

Presentation

Application



Examination

Review and/or Critique.

Figure 8. Stages of instruction.

20. Preparation by the Instructor

a. Careful planning is the first step in efficient training. The instructor must analyze the specific procedures, skills, and information which are to be taught. He must organize materials so that the basic ideas are adapted to the student's backgrounds and needs and so that the lessons are aimed at achieving specific objectives. He must present the lesson in the manner that will best facilitate learning; the objective of the lesson will determine the methods to be used.

He must proceed from the simple to the complex, from the known to the unknown.

b. Careful preliminary analysis, correct solution of all instructional problems, and repeated rehearsal and review of procedures and materials will help to insure maximum student learning in the minimum amount of time.

c. Mastery of the subject is only the first step in instructor preparation. The instructor must determine how to arouse the students' desire to learn and how to present subject material so that each member of the class learns all essential procedures and ideas.

21. Presentation

Actual teaching begins with the second stage of instruction, which is the presentation stage.

a. *Introduction.* Students must first be prepared to receive the ideas which will be made available to them; their attention must be attracted, their enthusiasm aroused. They must be told *what* they are to learn, *why* they are learning this particular material, and the *proficiency* they are expected to attain. Use of brief and familiar illustrations, experiences, and comparisons will aid in accomplishing the desired results.

b. *Explanation.* Following the introduction, the explanation makes new ideas available to students. This is accomplished by lectures, conferences, or discussions, all of which should lead to comparisons or contrasts in terms of what students already know, and by graphic, step-by-step illustrations. The instructor must remember that *telling*, through lectures and conferences, is limited to the sense of hearing. A combination of techniques utilizing several senses—sight, smell, touch, hearing—results in faster learning and must be employed wherever possible.

c. *Demonstration.* Another method of presenting new material is by *showing*. This is of particular importance in Army instruction because soldiers must be shown how to do the jobs they will perform. Good demonstrations leave a vivid impression on the student.

22. Application

In this stage students are given an opportunity to *do*, to apply the principles and procedures learned in the presentation. Efficient use of application periods will often give students a firm grasp of a difficult subject. Application periods must always be supervised to insure that students follow correct procedures. Team performance as well as individual performance can be greatly improved in this stage.

23. Examination

In this stage instructors *check* on the students' mastery of materials taught. Instructors can be certain that students have mastered the essentials only by checking their ability to perform without assistance.

24. Review and/or Critique

This is the final stage of instruction and always follows the application or the examination. Here instructors *review* the knowledge, skills, techniques, or appreciations acquired in the instructional unit. This stage completes the picture by clarifying any phases of instruction which are not completely understood. The term *critique* is usually restricted to the review given after an examination or applicatory exercise.

25. Application of the Stages of Instruction

The stages of instruction serve as a check list for the instructor in choosing teaching procedures. Whenever practical, he applies all five stages to each lesson presented. It is often better to present certain subjects in small segments, processing each segment through all the stages of instruction, including the application and examination stages, before going to the next segment. In some lessons various stages are combined; for example, in many practical exercises the application and examination stages are combined. In controlled practice, when material is presented step by step, the presentation and application stages are combined. Flexibility is the key to successful use of the stages of instruction. The instructor should use them as a guide; they are not intended to cause instruction to become artificial or stereotyped. However, the instructor must study every instructional situation for opportunities to secure student participation in the application, examination, and critique stages. He must strive for the *complete* teaching process in which he can *plan, tell, show, do, check, and review and/or critique*.

CHAPTER 4

PLANNING THE LESSON

Section I. STEPS IN PLANNING THE LESSON

26. General

Careful and thorough preparation by instructors is essential to successful instruction. The effectiveness of the other stages of instruction will depend upon how well the instructor has selected his teaching points; adapted his material to the special needs, abilities, and interests of the class; arranged for equipment and materials needed; planned for learning activities; and anticipated problems peculiar to the subject. Many instructors feel that there is never enough time for adequate planning; one solution to this problem is to use a systematic procedure in the preparation of a lesson. Such a procedure is presented below as steps in planning the lesson.

- a.* Make an estimate of the situation.
- b.* Select and organize subject matter.
- c.* Make a lesson plan.
- d.* Rehearse.
- e.* Make a final check.

27. Make an Estimate

Every sound plan should be preceded by an estimate of the situation (fig. 9) in which various courses of action are evaluated in the light of the desired objective. Planning a unit of instruction is no exception. The estimate, when applied to lesson planning, is primarily a process of anticipatory thinking wherein the instructor compares the various solutions to instructional problems. Although this estimate is a logical first step in planning, it is also a continuous process and is often carried right up to the presentation of the lesson. Decisions reached as a result of this estimate shape the instructor's tentative teaching plans and determine the methods and techniques to employ. Some of the factors which will be considered in the estimate of the instructional situation are—

a. Mission. This is actually the starting point for all planning activities. The instructor must realize from the start just what he is to accomplish. The mission can be obtained from programs of instruction, subject schedules, or training memorandums. The mission should be specifically stated in terms of the learning to be developed rather than in broad, general statements. The first step the instructor should



Figure 9. The estimate.

take in planning a lesson is to write out the lesson objectives so that the mission will be clearly defined.

b. Analysis of the Subject.

- (1) After determining the specific objectives, the instructor decides what skills, knowledge, or techniques the student must learn for successful performance of the mission. For example, the mission of a lesson may be: *Using the Message Book Properly*. An analysis of this subject, or breaking it down into instructional steps, would result in these teaching points: consider the essentials of a good message, show and explain the message book, demonstrate how to write a message, and have the students write messages in message books. Each of these steps would have subpoints in the presenta-

tion, but in the analysis only the major instructional steps required to accomplish the mission are considered.

- (2) There is a tendency to underemphasize or omit basic points in analyzing a job. Men who are specialists in certain skills often forget that many of the operations which they now take for granted had to be learned when they were beginners. Carpenters find it hard to remember that at one time they did not know how to hold a hammer; drill sergeants may overlook points which, if not emphasized properly, make learning the manual of arms difficult for trainees. In making a job analysis, *all* essential procedures, facts, and principles of the particular job under consideration are studied. These become the teaching points of the lesson.

c. Equipment, Facilities, and Training Aids. The instructor must consider the requirements for, and availability of, training aids, equipment, training areas, and facilities. Advance notice is required to obtain training films from film libraries and graphic aids and training devices from training aids subcenters. Frequently instructors must improvise, and this often takes time. Last-minute arrangements for training aids or equipment usually result in slipshod instruction. The location for instruction must be selected well in advance and arrangements made for its use.

d. State of Training. In considering this factor, the instructor must review training schedules and other sources to determine what previous training and experience the men have had. With this information, he can better coordinate his own unit of instruction with other phases of the training program. It enables him to plan an effective approach to his subject, an approach which will meet the specific needs and background of the students.

e. Time Available. If time is short, subject matter must be limited to the items essential for accomplishment of the lesson objectives. If time is available, more class participation can be used and more supporting material can be included. Lack of time cannot justify poor instruction; the instructor must consider the time available and plan to use that time effectively.

f. Instructors Needed. What instructors and assistants will be needed? What training will these men need? These questions must be answered in the early phase of the preparation stage.

g. Training Conditions. The instructor must consider the conditions which will affect his presentation. Seasonal changes in weather may require moving classes indoors. The instruction must be flexible enough to remain effective when obstacles to training arise. The basis of such flexibility is careful planning.

h. Every Problem Anticipated. This should be the instructor's goal in his estimates. He must attempt to anticipate all the prob-

lems that might arise during his lesson and plan how to solve them if they do arise. He should consult with other instructors, more experienced than he if possible, since experience is particularly valuable in this phase of the estimate.

28. Select and Organize Material

a. In selection and organization of subject matter for a lesson, the instructor first studies reference materials and acquires a broad background of information on the subject. He becomes thoroughly familiar not only with what will be presented to the class, but also with material which is related to the subject. After this study and research, he selects the information which he will present in the lesson, this selection being based on the analysis which he made in his estimate of the instructional situation. He particularly looks for illustrations, historical examples, and stories which can be used to make the presentation more interesting and meaningful to students.

b. Next he considers the order of presentation, or organization. This order must be logical and progressive from the learner's point of view.

c. One very effective way to organize a subject is to select a problem, a hypothetical illustration, or a historical example as a "vehicle" to carry the teaching points. For example, a lesson on patrolling could be taught by discussing a hypothetical patrol action, using maps and other training aids, and then asking the students to point out the tactical principles which were applied or violated. This method, which is called the *case method*, makes teaching points vital and interesting; it emphasizes the application of the material being taught and presents knowledge from the standpoint of how it will be used.

29. Make a Lesson Plan

As a result of his study and research, the instructor will have copious notes which must be put into a usable outline; this outline is the *lesson plan*. Good lesson plans are material evidence of careful preparation. Instructors must remember that their lesson plans may be used by others as well as by themselves, and therefore, must insure that their plans are clear and complete.

a. *Purpose of the Lesson Plan.* The purpose of the lesson plan is to insure that the lesson will be complete. It shows what material is to be taught, in what order it is to be taught, and exactly what procedures will be used. Each lesson plan is an outline of one segment of a course. A lesson plan will—

- (1) Insure a wiser selection of material and more complete coverage of a subject and help to keep the instructor pointed toward his goal.
- (2) Aid the instructor in presenting material in the proper sequence for efficient learning.

- (3) Insure that proper consideration is given to each part of the lesson, that essential points are included, and that irrelevant material is omitted.
 - (4) Provide time control.
 - (5) Provide an outline of the teaching methods and procedures to be used in the instruction.
 - (6) Assist in the proper use of training aids.
 - (7) Serve as a record for use in making examinations, in relating each lesson to the course objectives, and in determining the state of training of a class.
 - (8) Give confidence to the instructor.
 - (9) Refresh the instructor's memory and serve him as a guide.
- b. *Use of the Lesson Plan.*
- (1) The lesson plan is not a crutch. The instructor will seldom hold the plan in his hand, but will keep it available at all times for quick reference. He should not read from it except perhaps in giving a quotation or details of highly technical material.
 - (2) The lesson plan is not a substitute for thinking. If it has been prepared by someone else, as it often is, the instructor must master each step thoroughly before using it—he must make it part of his own thinking. The lesson plan is a skeleton which the instructor should supplement with as many examples, illustrations, and practical applications as possible.
 - (3) The instructor must review his lesson plan each time he uses it. Few men are gifted with such phenomenal memories that it is not necessary for them to refresh themselves on what is to be taught and how the class is to be conducted. This review will put the material at the instructor's immediate command, eliminate unnecessary pauses, and help to keep the lesson progressing smoothly and effectively.

30. Rehearse the Lesson

A rehearsal of each new lesson provides the final check on the instructor's plan.

a. Rehearsals should be complete in every respect. Instructors must make a practice of using the indicated training aids, performing the scheduled demonstrations, and following the order of presentation. If application or examination is used, it should be checked during the rehearsal. The physical setup should be as nearly that of the actual situation as possible.

b. Assistant instructors must be present and rehearse their duties as they would perform them during the actual lesson.

c. An audience should be present, consisting of one or more persons of superior or equal rank to the instructor. Members of such an

audience can offer valuable, constructive criticism on such points as the instruction material, choice of words, rate and volume of speech, and effectiveness of questions and demonstrations.

d. Rehearsals for demonstrations must be repeated until each step is performed easily and timed properly.

e. If time does not permit a complete rehearsal, the instructor must at least talk through the main points of the lesson and fix in mind his approach to the instruction.

31. Make a Final Check Prior to Class

Just before the instruction is given, the instructor and his assistants must insure that everything is in readiness for the lesson. Verify these items:

a. Is the necessary equipment on hand?

b. Is the physical setup properly arranged? (Tables, chairs, benches, equipment, ventilation, lighting, etc.)

c. Are all instructional materials for students' use at hand? (Reference materials, mimeographed materials, manuals, assignment sheets, work sheets, tests, etc.)

d. Are all assistants present, and do they understand their duties?

e. Have all training aids been procured and properly arranged for use?

f. Do you have your plan and notes for use during the lesson?

Section II. MAKING THE LESSON PLAN

32. Types of Lesson Plans

Lesson plans are written in outline form; the outlines may be either topical or sentence. The instructor's manuscript, which is a complete rather than an outline plan, is a variation of the lesson plan. The instructor should prepare both a lesson plan and an instructor's manuscript for each period of instruction, using the lesson plan for his presentation (par. 29*b*) and the instructor's manuscript for reference (*c* below).

a. Topical Outline. The most common type of formal outline is the topical outline. (The informal notes which an instructor makes for his own use are referred to as a scratch outline.) In the topical outline, the main points and subtopics are notes in brief phrases or single words.

Example:

- (1) Characteristics of a good message.
 - (*a*) Accuracy.
 - (*b*) Brevity.
 - (*c*) Clarity.

(2) Text of the message.

b. Sentence Outline. A sentence outline differs from a topical outline only in that each point is a complete sentence.

Example:

(1) Characteristics of a good message.

(a) Information contained in a message should be factual and not hearsay.

(b) Messages should be written as briefly as possible consistent with clarity.

(c) Messages should be so written as to be clearly understandable to the addressee.

(2) The text of the message.

c. Instructor's Manuscript. An instructor's manuscript contains everything that is to be said and done during a period of instruction. A manuscript should be written for each period of instruction and kept on file for future reference. The author can use it to refresh his memory, and it is especially valuable to a new instructor preparing to take over an established unit of instruction.

33. The Lesson Plan Form

A lesson plan consists of two major parts: the heading and the lesson outline. A form which can be used in most situations is shown in figure 10.

a. Heading. The heading lists the title, time, method, training aids, references, and other essential information.

b. Lesson Outline. The lesson outline portion of the plan outlines the subject matter together with the teaching procedures to be used.

34. Making the Lesson Outline

In setting up the lesson outline, it is desirable to "block" each paragraph and subparagraph instead of returning all lines after the first to the left margin (fig. 10). This makes the plan neater and keeps single words from appearing on the left of the page.

a. Use Correct Designation of Topics. A standard method of designating topics (paragraphing) in the outline is essential to clarity, standardization, and ease of use. An approved method is illustrated in figure 11.

b. Select Main Points and Subtopics. The main points in the lesson outline are the teaching points of the lesson—the points which the student must learn if he is to fulfill the requirements established by the instructor. These points should be mutually related, coordinated, and arranged progressively. The supporting or explanatory subtopics should be related to the main point and helpful in developing its meaning. Subtopics should be related to the main points by such terms as *that is*, *for example*, and *for*; however, these terms are understood and not written into the outline.

LESSON PLAN

INSTRUCTIONAL UNIT: (What is the subject to be presented?)

TYPE: (Which methods will be used? Lecture, conference, demonstration, practical exercise.)

TIME ALLOTTED: (How much time?)

CLASSES PRESENTED TO: (Who will receive the instruction?)

TOOLS, EQUIPMENT, AND MATERIALS: (What items will the instructor need to supply to the students for his class?)

PERSONNEL: (What assistant instructors are needed?)

INSTRUCTIONAL AIDS: (What training aids will be required? Detailed description of aids may be put into an annex to the plan.)

REFERENCES: (Where is the subject matter for this lesson found?)

STUDY ASSIGNMENTS: (What should the student study before coming to class?)

STUDENT UNIFORM AND EQUIPMENT: (What should the student bring to class, and how should he dress?)

TROOP REQUIREMENTS: (Will troops be required?)

TRANSPORTATION REQUIREMENTS: (Will transportation be needed?)

NOTE: Place in the heading of the lesson plan all information regarding preparation necessary for the conduct of the lesson. Do not omit elements of the heading; if they do not apply, write NONE. The heading serves as a check list for the preparation stage.

Figure 10. A form for a lesson plan.

1. PRESENTATION. (State method and time required.)

a. Introduction. (Time required.)

NOTE: If some special technique is used to gain the attention of the class, such as a demonstration or skit, put it into your lesson plan as a NOTE.

- (1) Objective. Give the objective or purpose of the instruction.
- (2) Standards. If specific standards are required in the lesson, tell the students what is expected of them.
- (3) Reasons. Give the student reasons for learning this lesson. Stress its importance.
- (4) Other elements which may be outlined in the introduction.
 - (a) Review of previous instruction.
 - (b) Procedure to be followed in this unit.

NOTE: These elements in the introduction may be outlined in any order which seems best for the presentation.

b. Explanation and/or demonstration. (Time required.)

- (1) All main points of the presentation should be designated (1), (2), (3), etc.
- (2) When notes, training aids, questions, and other instructional procedures supplementary to the lesson are used, they are put into the plan as follows:

QUESTION: What are the limitations of the light-gun tank?

NOTE: Use Chart Nr 7.

Figure 10—Continued

ILLUSTRATION: Draw circuit diagram on blackboard.

CAUTION: Be sure driving spring rod slot is in vertical position and locked in bolt.

EXAMPLE: Combat story of poorly planned patrol action.

SUMMARIZE: First three points covered.

(3) If a demonstration is used:

(a) Outline in proper order the steps of the procedure.

(b) Include in the outline:

1. Questions to check understanding.
2. Notes on use of equipment.
3. Notes on safety precautions.

c. Summary. (Time required.)

NOTE: Summary should be used here if the unit includes application and/or examination. When the lesson includes only presentation and review or critique stages, use the summary in the review or critique stage.

(1) Review main points.

(2) Re-emphasize important items and safety precautions.

2. APPLICATION. (Stage method and time required.)

a. Outline in detail.

- (1) Directions to students.
- (2) Arrangement of students, requirements, and material.
- (3) General plan for conduct of the practical work.
- (4) Practical exercises, if any, in an annex to the plan.

Figure 10—Continued

OUTLINE FORM

1. FIRST MAIN IDEA BEING OUTLINED.
 - a. Fact, opinion, or evidence supporting this idea.
 - (1) Important item relating to a.
 - (2) Another item relating to a.
 - (a) Subordinate data in support of (2).
 - (b) More data in support of (2).
 1. Item to support (b).
 - (a) Subtopic supporting 1.
 - (b) Another item supporting 1.
 2. Another item in support of (b).
 - (c) Another point supporting (2).
 - b. Another fact supporting 1.
2. SECOND MAIN IDEA BEING OUTLINED. Equal to 1, above.
 - a. Fact supporting second main idea.
 - (1) Item explaining a.
 - (2) Second item explaining a.
 - b. Second fact supporting second main idea.

Figure 11. Outline form showing designation of topics.

Example:

- MAIN POINT----- (1) The commander is responsible for all camouflage measures within his command.
- SUBTOPICS ----- (For example)
- (a) Choice of position.
 - (b) Employment of materials and construction.
 - (c) Enforcement of camouflage discipline.

c. Show Teaching Procedures. The teaching procedures, such as summarizing, use of training aids, and questioning, should be shown parenthetically in the lesson plan—not as main points or subtopics.

Examples:

WRONG

- (1) Fundamental logistical considerations.
 - (a) Supply a function of command.
 - (b) Impetus of supply from rear to front.
 - (c) Need for advanced flexible planning.
 - (d) Adequate reserves in all echelons.
 - (e) Summarize considerations.

RIGHT

- (1) Fundamental logistical considerations.
 - (a) Supply a function of command.
 - (b) Impetus of supply from rear to front.
 - (c) Need for advanced flexible planning.
 - (d) Adequate reserves in all echelons.

SUMMARIZE: Fundamental considerations.

d. Have at Least Two Headings of Each Order. Since a topic is not divided unless there are at least two parts, an outline should have at least two headings in each order. If there is an *a*, there must be a *b*; if there is a (1), there must be a (2).

RIGHT

- (1) The executive branch.
 - (a) President.
 - (b) Cabinet.
- (2) The legislative branch.
 - (a) The House.
 - 1. Functions.
 - 2. Privileges.
 - (b) The Senate.

WRONG

- (1) The executive branch.
 - (a) President and his cabinet.
- (2) The legislative branch.
 - (a) The House.
 - 1. Functions.
 - (b) The Senate.

CHAPTER 5

PRESENTING ORAL INSTRUCTION

Section I. THE INTRODUCTION

35. General

Whether the instructor uses a lecture, a conference, a short explanation with other methods, or a combination of methods, his oral instruction is divided into three parts: the *introduction*, the *explanation* (or body), and the *summary*.

36. Need for an Introduction

By means of the introduction, the instructor sets the stage for his presentation (fig. 12). The introduction will vary in length, depending upon the nature of the subject and the teaching situation. The introduction serves a threefold purpose: It establishes contact between the instructor and his class, it arouses student interest in the subject and secures student attention, and it discloses the nature of the subject and clarifies its objectives.

a. To establish contact, use—

- (1) Good speech techniques. (See pars. 46–56.)
- (2) A good opening statement.
- (3) Reference to previous instruction.
- (4) Reference to special interests of the class or to an idea dominant at the moment.
- (5) A story which can be directly related to the lesson being taught.

b. To arouse interest and secure attention, use—

- (1) A startling statement.
- (2) Stories or examples.
- (3) Rhetorical questions.
- (4) Quotations and historical illustrations.
- (5) Skits or demonstrations.

c. To disclose and clarify the subject, tell the class *what* is to be taught and *why* it is important.

37. Elements of the Introduction

The objective of the lesson and the reasons for learning the lesson should always be included in the introduction. Other elements, which may or may not be included, are a review of previous instruction, achievement standards expected, and the procedure to be followed

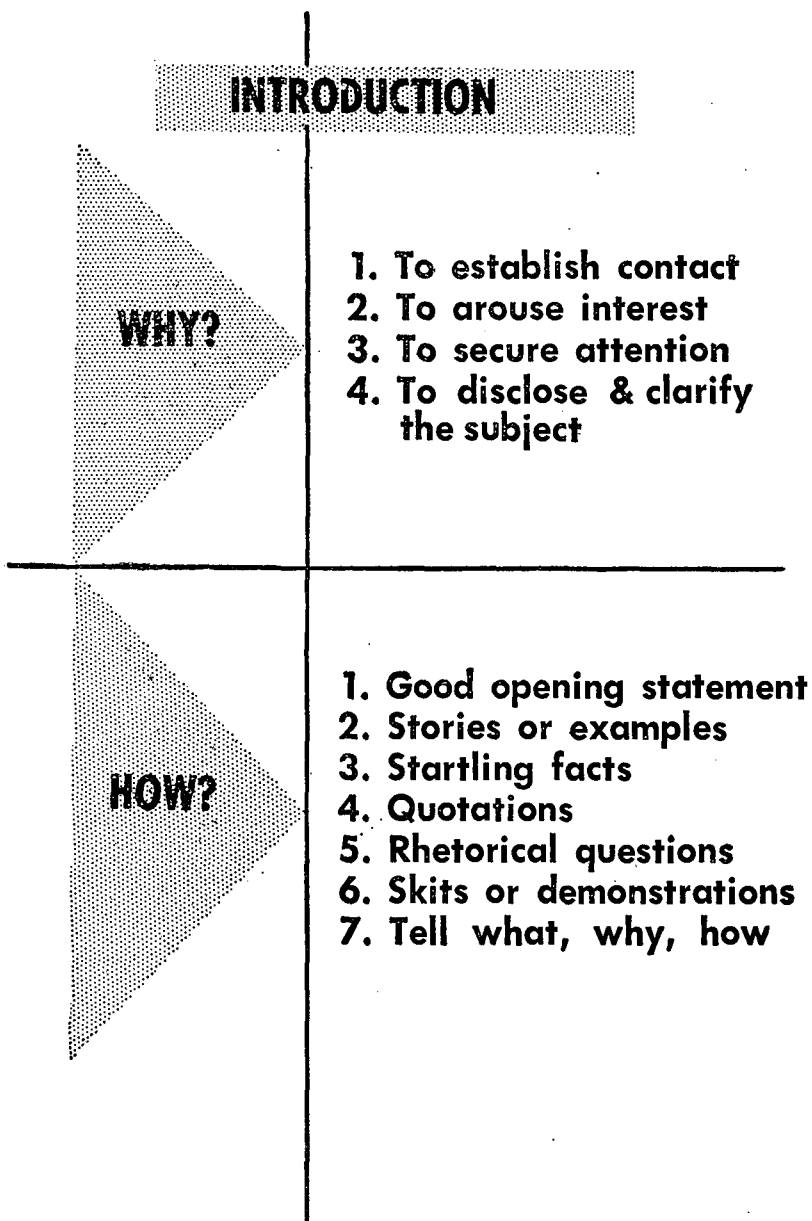


Figure 12. The introduction.

in conducting the lesson. These elements follow no set order, and the instructor should not develop a stereotyped pattern. For each lesson he should write out or fix in his mind what he intends to say in his introduction and then be sure that he has included all the necessary and desirable elements.

a. *Objective of the Lesson.* State briefly and clearly what is to be learned. State the objective in terms of what the students will do rather than in terms of your teaching. For example, the statement "During the next hour we will learn to operate the M4 sight" is better than "During the next hour I am going to teach you to operate the M4 sight." The first statement places the responsibility for learning squarely on the student. The objective should be stated forcefully and enthusiastically; be brief, clear, decisive, and specific. Never preface your remarks with, "This is the driest subject in the Army," or "Regulations require that this subject be taught, so bear with me as we proceed."

b. *Reasons for Learning the Lesson.* American soldiers like to know the *why* of things, and every instructor should strive to satisfy that curiosity. If you are to teach something which will be helpful in saving the soldier's life, tell him so. Make your reasons convincing. Make students feel that it is important to them as individuals to learn the lesson. Use real-life examples and illustrations. Relate some personal experience that will drive the point home. If your experience is limited, describe an experience that some other person has had, or use a hypothetical example which will show the value of learning. *Whenever possible, stress the battle importance of the lesson.*

c. *Standards or Level of Student Attainment.* In some introductions, where the objective has been specifically stated, this element is not required. However, especially during basic training or when teaching basic classes, much confusion can be eliminated by telling students exactly what will be expected of them as the result of the instruction.

d. *Brief Explanation of the Procedure To Be Followed.* When students know what is to take place, they will be more attentive. To illustrate: "During the next two hours we will follow this procedure. I will explain the steps as my assistant goes through the disassembly and assembly of the gun. Watch him closely, and disassemble and assemble each part immediately after he does. The assistants will check you as you proceed. When that has been completed, you will disassemble and assemble the gun at your table under the supervision of the assistants. Enough time is allowed to permit you to do this several times. Practical tests will be conducted during the last 30 minutes so that each man can see how well he has learned the lesson."

e. *A Review of Previous Instruction.* In every unit of instruction which is a continuation of previous instruction, the introduction should contain a brief review of the previous instruction. This is one application of the *principle of background* and serves to recall information the student has already learned as well as to place every member of the class on a common footing.

Section II. THE EXPLANATION

38. General

In the explanation or body of the oral presentation, instructors actually present their teaching points. Subject matter is explained, understanding is developed, and appreciations are stimulated (fig. 13).

39. Organization of the Explanation

The explanation must be so organized that the students can follow the order of presentation. An organization that is completely understandable to the instructor, or to someone else familiar with the subject, may not be logical for presentation to students getting their first knowledge of the material. The instructor must limit the number of main topics discussed. Students can easily remember two or three main topics, and can remember four or five with little difficulty; whereas the presentation of eight or ten main points will confuse them. Some instructors help students follow the organization by using training aids listing the main points; some use advance sheets or precis.

40. Transition Between Points

Getting from point to point is a problem which instructors must solve in presenting oral instructions. A well-presented lesson progresses by steps. When presented smoothly, the parts are connected by transitional words, sentences, or statements. Transitions make it easy for students to follow the instruction and to know when one point is finished and the next is being taken up. Here are some techniques that help instructors to make smooth transitions. Mix up these techniques; do not use the same one or two all the time.

a. Refer Often to the Objectives of Your Lesson. For example, in teaching the principles of war, go to the next principle by referring to your objective: "Another principle of war which we must consider is the principle of mass." This is one very good reason for putting titles on charts; it is possible to go back to the title in making transitions.

b. Use Frequent Summaries. This is a valuable teaching technique because it makes use of repetition. The summary also is an excellent way to get from one point to another. For example, in the lesson on principles of war: "We have considered the principles of simplicity, unity of command, and the offensive; now let us consider the principle of maneuver."

c. Use Rhetorical Questions. For example: "What other general principle can we use as a guide to the exercise of command? We gain advantage over the enemy by applying the principle of surprise."

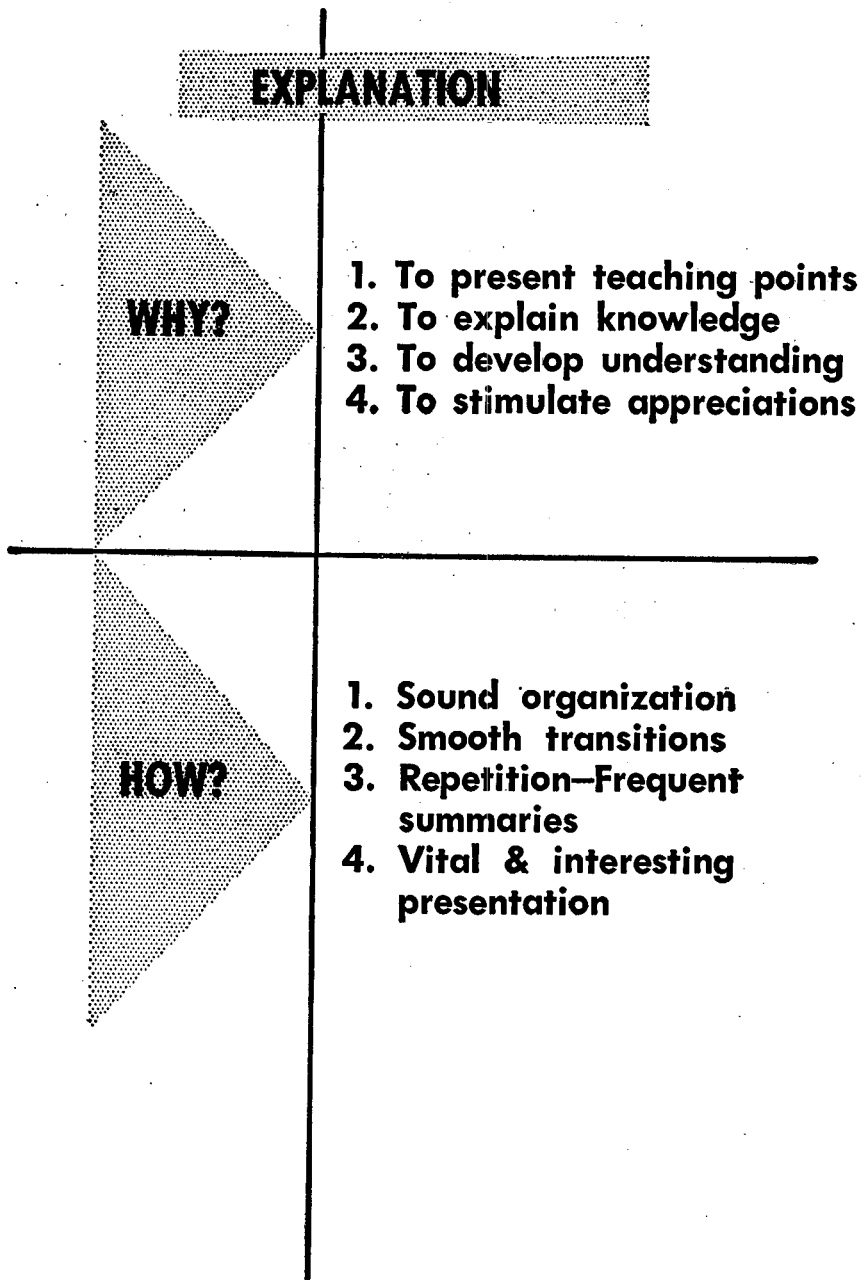


Figure 13. The explanation.

d. Use Connective Words or Phrases. Words such as *however*, *moreover*, *therefore*, *accordingly*, all serve as signals that one idea is closing and another is opening. Do not fall into the habit of overworking one particular connective, and try to avoid such terms as "now," "all right," or "now we'll take up."

e. Enumerate Points. Use numerals—"first," "second," etc.—or list the points on a chart.

41. Maintain Student Interest.

The instructor must make every effort to vitalize his material so that the interest of this class will be high. He should never admit that his subject is dry; instead, he should find ways to keep the attention of his students. When the instructor merely talks, the student interest soon dies. To keep classes alive and to promote learning, make use of the following:

a. Specific Explanation. The specific and the concrete are of interest; the general and the abstract are usually hard to follow and destroy interest. Instructors must be specific and avoid talking around the subject in vague or general terms.

b. Stories and Experiences. Army instructors are unusually fortunate in that they have a wealth of stories and experiences which are applicable to their subject matter. These stories vitalize presentation. An instructor with combat experience can often emphasize the importance of a subject by telling just how it was applied in his outfit. Army professional publications contain stories and examples that can be used in classes. A quotation from some prominent military leader helps to stimulate interest and vitalize instruction.

c. Illustrations and Examples. People are visual minded: They like to have ideas presented in picture form. To take advantage of this characteristic use illustrations and examples; they are easily remembered and make abstract ideas clear. Illustrations and examples may be real, or they may be hypothetical.

d. Rhetorical Questions. Questions bind instructors and students together. They arouse the sluggish; they compel those who hear to seek an answer. In a lecture, the instructor asks questions rhetorically and then answers his own questions. Topic sentences can well be stated as rhetorical questions.

e. Training Aids. The use of charts, diagrams, models, and other training aids helps keep the subject interesting. Plan to use training aids at points in the oral presentation where the lesson may seem dull. When aids are used to vitalize oral instruction they hold attention, arouse interest, and help get the teaching points across.

42. Emphasizing Teaching Points

If the main teaching points are not emphasized, the student may not grasp them, or he may soon lose them. One of the most effective

ways to secure emphasis is by repetition; this is another reason for using frequent summaries in a lesson. One of the least effective ways to emphasize, however, is to repeat an idea immediately after its first presentation. Remember that repetition has its limits; it must be well done and it must be distributed properly or it will become monotonous.

Section III. THE SUMMARY OR REVIEW

43. General

The summary, a brief review of the complete presentation, gives the instructor an opportunity to increase learning through repetition. Instructors should be skilled in the use of the summary; they should know what it contains (fig. 14) and how it is used most effectively. See paragraphs 100 through 102 for a discussion of the review, or summary, as a stage of instruction.

44. Use of the Summary

The summary should be used at any point in the lesson where there is a need for a brief recapitulation of the points covered. In most cases, no more than three topics should be presented before summarizing, and it is often better to summarize more frequently. Frequent use of summaries throughout the lesson helps students to keep the main points clearly in mind. The lesson should always be concluded with a complete summary—an overall picture of what has been presented in the lesson. This final summary is the instructor's opportunity to wrap the lesson into a compact package for the students.

45. Elements of the Summary

Keep in mind that the summary must be brief; do not try to reteach the lesson. The summary should contain at least the following elements:

- a.* A recapitulation of the main points covered in the lesson.
- b.* A reemphasis of important ideas, steps of procedure, and safety precautions.
- c.* A strong closing statement. The closing statement should leave a lasting impression in the minds of the students. It may include a remark or two on some favorable results that were obtained by proper use of a principle, or the disastrous result of malpractice. Above all it must be related to the objectives of the lesson and leave the students with a feeling of having accomplished their mission.

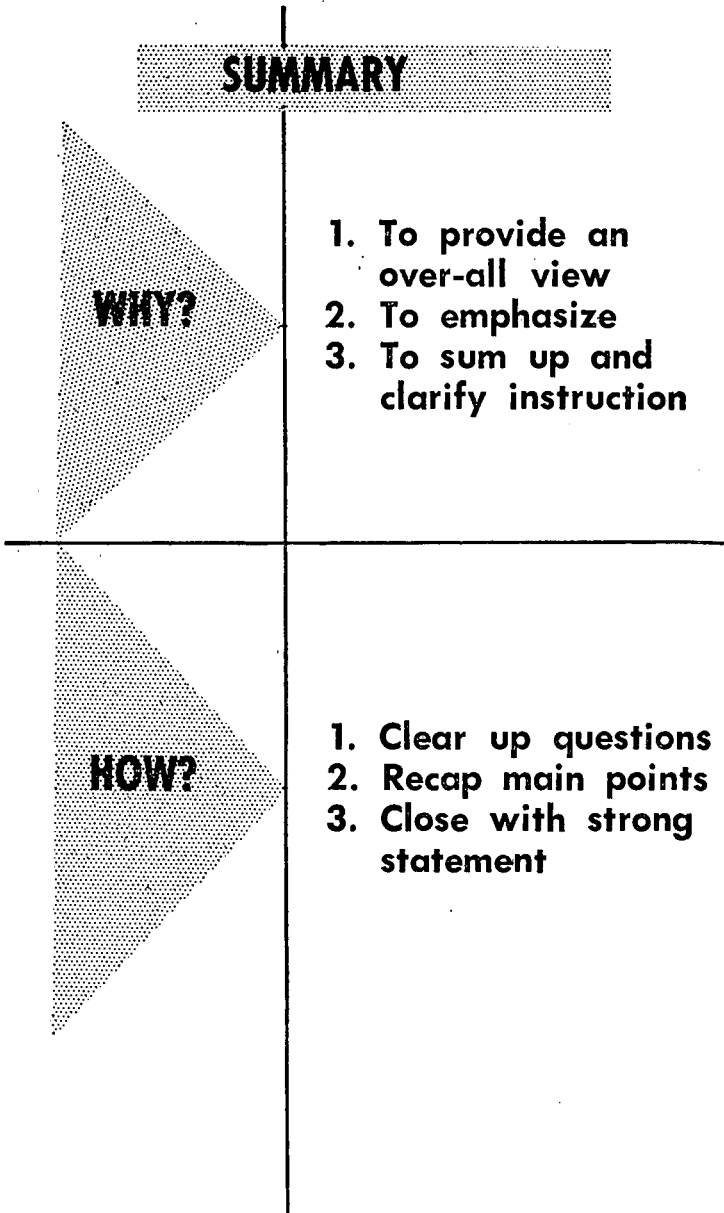


Figure 14. The summary.

CHAPTER 6

SPEECH TECHNIQUES

Section I. GENERAL

46. Purpose

Military leaders who can speak with clarity and logic possess an art which will always serve them well. The ability to speak effectively not only is essential to personal military leadership, but also is necessary for efficient instruction. Much of our military training and education takes the form of oral instruction. Unless oral instruction is presented with good speech techniques, interest succumbs to boredom, understanding is replaced by confusion, and potential soldiers are discouraged in their desire to learn. This chapter deals with certain specific speech techniques. *Fundamentals are stressed.* An instructor who has no serious speech defect should be able to improve his delivery significantly if he makes a genuine effort to apply these fundamentals.

47. Importance of Speech Techniques

An instructor may know his subject thoroughly, he may have an effective teaching personality, he may have made complete preparation for presentation of a lesson. Nevertheless, the quality of his oral instruction will depend largely upon the degree of his skill in the specific techniques of delivery. Keep in mind, while studying the speech techniques presented in this chapter, that many of them are used in combination although they may be discussed separately.

Section II. TECHNIQUES OF DELIVERY

48. Get Contact and Keep It

Instructors must not develop the idea that they are making speeches. They must realize that they are not talking *at* students, but are really talking *with* them. The purpose of speech is to communicate ideas. The instructor must establish a personal contact (fig. 15) with the class and keep that contact. Here are some suggestions which will be helpful:

a. *Get the Attention of the Class First.* Do not start the class until you have the attention of the students. In some cases, walking to the center of the platform will cause men to quiet down and listen;



ARE YOU MAINTAINING CONTACT?

Figure 15. Are you maintaining contact?

more often, it will be necessary to ask for their attention. A simple "Your attention, please!" will produce the desired result.

b. Look at and Talk to Your Students. Observe people in earnest conversation and you will notice that the speaker does not look out the window or at the floor or ceiling. He looks his listeners in the eye. He probably is not conscious that he is doing so; the earnestness of his purpose naturally finds its expression in this personal contact. Address your students and not the training aids or the distant landscape. Give every student the feeling that you are looking at and talking directly to him. Establish eye contact.

c. Speak in a Conversational Tone. Be conversationally direct. Do not let your voice reflect an impersonal, indifferent attitude. Do not orate or declaim. Make frequent use of the pronoun "you"; identify yourself with your students by "you and I" or "we." Leave the impression that you and they have some things in common.

d. Be Alert! Look Alert! Know what is going on in your class. Pay close attention to students' responses. Listen carefully and evaluate their comments and answers to your questions. Be quick to spot an inattentive student. Look directly at him. Take a step toward him—or ask him a question. Continually ask yourself, "Do my students understand?" Check frequently to make sure they are following you.

49. Control Nervousness

Almost every instructor experiences nervousness to some degree prior to his initial appearance before a class. This is not undesirable, provided the instructor learns to control it. Nervousness simply indicates that the instructor is aware of the class and is concerned about its reaction to his instruction. Instructors who completely lack ner-

vousness are likely to be stolid, unimaginative individuals who probably will never do more than a mediocre job of instruction. Once the instructor learns to control himself, his nervousness becomes a keyed-up, wildly emotional feeling which is highly desirable. Good instructors usually devise their own particular techniques of making their nervousness work for them instead of against them. Some of these techniques are—

a. Be Thoroughly Prepared. The first step the instructor can take to overcome excessive nervousness is thorough mastery of the subject and careful planning of the lesson. Then he must realize that the students are there to learn and that they are more interested in the subject than in the instructor. Think of the subject and the learning which should result from the instruction, and nervousness will take care of itself.

b. Assume the Proper Mental Attitude. The most reliable weapon the instructor has for overcoming nervousness is a proper frame of mind toward himself, toward the students, and toward the entire instructional setup. In order to assume a proper frame of mind, he must make an intelligent, rational analysis of the situation. He must realize that the basis for the very unpleasant mental and physical reaction which he experiences when before a class is fear—not of bodily injury, but of what the students will think of him and his instruction. Students expect their instructor to have full knowledge of the subject and to be able to teach it effectively. Although students focus their attention upon instructors, they do not place them on trial immediately. If the instructor has mastered his subject and has made thorough preparation, he has eliminated the real reason for fearing the reaction of the students; he has every right to a feeling of self-confidence which will go far to making his presentation a success.

c. Have Initial Remarks Well in Mind. The first few moments are the most difficult; get past these and things will go well. It is advisable to have the lesson introduction so well in mind that no notes are needed.

d. Review Previous Instruction. By starting with a reference to a phase of training previously completed, the instructor immediately causes the students to focus their attention on something with which they are familiar. The instructor thus meets the students on common ground and at the same time gets their attention away for himself.

e. Tell a Story. Nothing releases tension so quickly as a bit of humor injected early in the introduction. Remember the purpose of telling the story; be sure that it has a point which can be related to the subject. When setting out to get a laugh, make sure that you get one; the purpose is defeated if the story does not go over.

f. Be Deliberate—Slow Down. When a person is nervous, there is a tendency for all body activities to speed up. Instructors should

remember this when they are faced with nervousness. They should be deliberate in movement and careful not to talk too fast. After a few moments of deliberate control, the stage fright will pass and the instructor's normal poise and bearing will take over.

50. Maintain Bearing

Because students react to what they see as well as to what they hear and understand, instructors must make certain that they meet military standards of appearance, bearing, and bodily control (fig. 16). Posture, bodily movements, and gestures can be highly expressive. They can make the difference between an excellent, enthusiastic presenta-

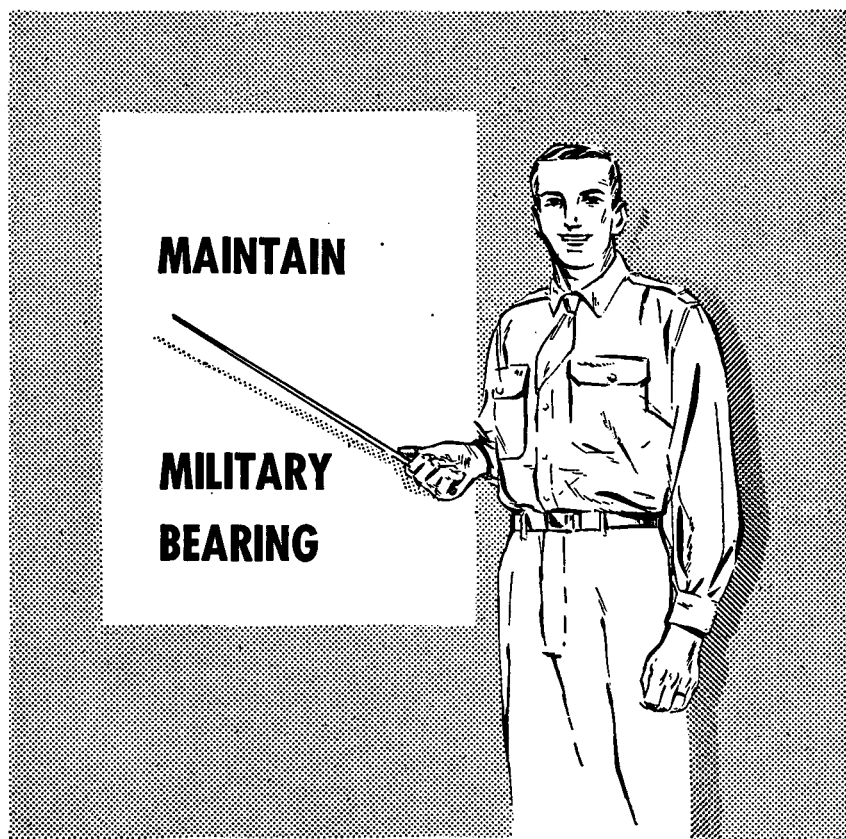


Figure 16. Maintain military bearing.

tion which stimulates students to effective learning, and a dull, uninteresting lesson to which students make a very weak response. Any physical attitude assumed, any bodily movement, or any gesture which attracts attention to itself is distracting and therefore is a hindrance

rather than an aid. Movements should appear free, natural, and spontaneous. Act natural.

a. Watch Posture. Take a position from which the entire class can see you and from which you can see all of the class. Stand erect with weight evenly balanced on the two feet. Look physically and mentally alert, but do not stand rigidly at attention. Relax. The hands? *Let the hands and arms hang freely at your side. The hands do not appear as large and awkward to students as they might seem to you. If you simply cannot let them rest at your side until ready to use them, clasp them in front or in back of you, or let one hand rest on the speaker's stand temporarily. Do not wring and twist them nervously. Make all movements brisk, decisive, and purposeful.* Do not stroll aimlessly back and forth across the platform. Avoid the two extremes: Do not stand perfectly still throughout the presentation, and do not move continuously.

b. Use Gestures. Gestures are motions of the body intended to express an idea, or to enforce or emphasize an argument, assertion, or opinion. In teaching they are made principally with the hands, arms, and head. Although the principal movement may be made with the hand and arm, the whole body should enter into the gesture. A gesture made with the hand may be accompanied by a step forward or by a nod. Make the gesture forcefully and naturally. Do not try to emphasize every statement with a gesture; to do so will defeat the purpose of gestures.

51. Avoid Distracting Mannerisms

A rule to remember is that instructors should avoid those things which cause the class to concentrate upon the instructor's mannerism rather than on the subject matter. Instructors may not be aware of their peculiar mannerisms (fig. 17) unless they ask associates for constructive criticisms of their delivery.

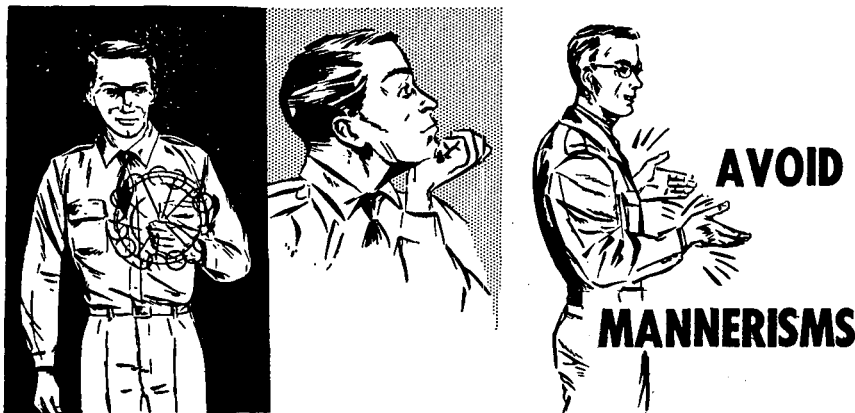


Figure 17. Avoid mannerisms.

52. Be Enthusiastic

There is no substitute for a physically vital and enthusiastic delivery (fig. 18). Enthusiasm is contagious. The instructor will find that, if he is sold on his subject and conveys this feeling to the class, he will keep his students interested and eager to learn. Instructors who have a dull, unanimated delivery will lose the attention of their classes. Instructor enthusiasm helps to develop favorable attitudes and appreciations for training programs. The basis for instructor enthusiasm is a thorough knowledge of the material being taught.

53. Be Sure You Are Heard

The instructor's voice is his best teaching tool because it is his most direct means of communication with the class. Most individuals have speaking voices adequate for instruction if they learn to manage a few factors which are basic to good speech.



Figure 18. *Be enthusiastic.*

a. Voice Quality. Voice quality is that characteristic which distinguishes one voice from another. Some voices have a pleasant quality, others are unpleasant. However, the average instructor has an individual voice quality which can be made pleasant to his listeners. An instructor can develop this pleasant quality by overcoming any tendencies he may have toward such things as nasality, hollowness, hardness, and throatiness. Furthermore, he should determine the pitch level at which he can speak with greatest ease and clarity, and then plan to keep this as an average pitch and vary between the limits of an easy range. This variety of pitch breaks the monotony and adds interest to the delivery.

b. Volume of Voice. Obviously, instructors must make themselves heard. All students in a class should be able to hear every word without difficulty. Therefore, it is necessary to talk loudly enough to reach the back of the classroom. Loudness requires volume—that is, the space-filling character of the voice. A thin voice can be fairly loud, but mere loudness is not sufficient. If the instructor's voice has volume, the students feel comfortable while listening. If the instructor's voice is thin, there is an impression of straining and weakness even though the instructor makes himself heard. When this situation exists, the students are prone to shift their attention to something else. You should vary the volume with the size of the class and with the conditions under which the instruction must be given. Be particularly attentive to volume when giving instruction in the open or in a building which has poor acoustics. Watch the reactions of your students; you can tell if they are having difficulty hearing. If there is any possibility that the volume of your voice is not satisfactory, have an assistant in the rear signal to you.

54. Be Sure You Are Understood

Successful instruction depends on how well classes understand instructors. Without understanding, there is little or no learning. Certain principles of planning and delivering lectures will heighten this understanding.

a. Choice of Words. If the instructor is to be understood, his words must be chosen carefully and his sentences must be developed clearly and logically. The right word in the right place is the keynote of effective speech. Verbal communication depends on using those words which have the exact shade of meaning to make the thought clear. Use terms which are common to the vocabularies of the students. Consider the educational level of the group. It is better to oversimplify instruction than to run the risk of talking over the heads of students. Do not try to impress students by using words with which they are not familiar. Your purpose is to make clear, not to confuse. Certain complex technical terms are essential. Use them but define

each new term the first time it is used. Use strong, meaningful, descriptive words and verbs which will leave vivid impressions. Add interest and color to your presentation by using a variety of descriptive terms. Use a variety of connective words; *and* is not the only connective in our language.

b. Forming Sentences. Careful selection of words implies that they must be grouped properly in order to express ideas clearly and accurately. Use short sentences. Signal the end of your sentences by voice inflection. Eliminate unnecessary words and phrases. Do not pad sentences and clutter delivery with trite expressions.

c. Rate of Speaking. Rate of speech should be adapted to the difficulty of the subject matter presented and to the learning ability of the class. Moreover, variety in rate of speaking is as important as change in volume. Speakers must seek variety in all aspects of their delivery. In general, if an instructor talks faster than 160 words per minute, students will have difficulty keeping up with him. On the other hand, if he talks slower than 90 words per minute, not enough is said to hold interest. Overrapid delivery tends to confuse students; overdeliberate delivery tends to irritate them.

d. Pauses. Pauses provide the punctuation of speech. They should be clean and decisive, giving students an opportunity to comprehend the meaning that gave occasion for the pause. The deadly "Er-r-r," "Ah," or "Uh-h" in the pause is a mental crutch which instructors cannot afford to use. The deliberately used pause should not be confused with hesitation caused by uncertainty. Pauses are a definite part of the art of speaking. Instructors must be alert to an effective use of the pause.

e. Enunciation and Pronunciation. Instructors must speak clearly and distinctly. Strive for clarity of expression each time you address the class. It makes no difference what part of the country you are from; enunciate clearly, and students from all parts of the country will be able to understand you. It is not necessary to change your whole pattern of speech. Pronounce or accent each syllable distinctly and clearly. It may be necessary to enunciate more forcefully and deliberately when instructing a large group than when carrying on a conversation. Be particularly careful to enunciate each syllable of new terms which may not be common to the vocabulary of your students. You will need to spell some terms or to write them on the blackboard. Pronounce the consonants forcefully; this calls for vigorous action of the lips and tongue. Instructors should enunciate each word as definitely and smartly as they give a salute. They must avoid slurring, swallowing, and mumbling their words.

f. Speaking and Thinking. Speaking is not a purely mechanical procedure. Instructors' words must not only be spoken clearly and distinctly, they must also be chosen and grouped in such a manner

as to express clear and definite ideas. Before an idea can be clearly expressed, it must first be analyzed. Ideas are formulated with words. Unless ideas are clear and definite, they cannot be expressed in definite words and sentences. The faulty choice of words which makes for weak expression is indicative of faulty, weak thinking. Learn to think while standing before the class; think on your feet. During the pause which follows a statement, formulate the next sentence. As you speak, think about what you are saying. If you have difficulty finding words to express yourself when standing before your class, try writing the key points of the lesson in short, complete sentences as you prepare for its presentation. You can clarify your thinking and improve your presentation by writing the complete text of what you intend to say; however, an outline, rather than the

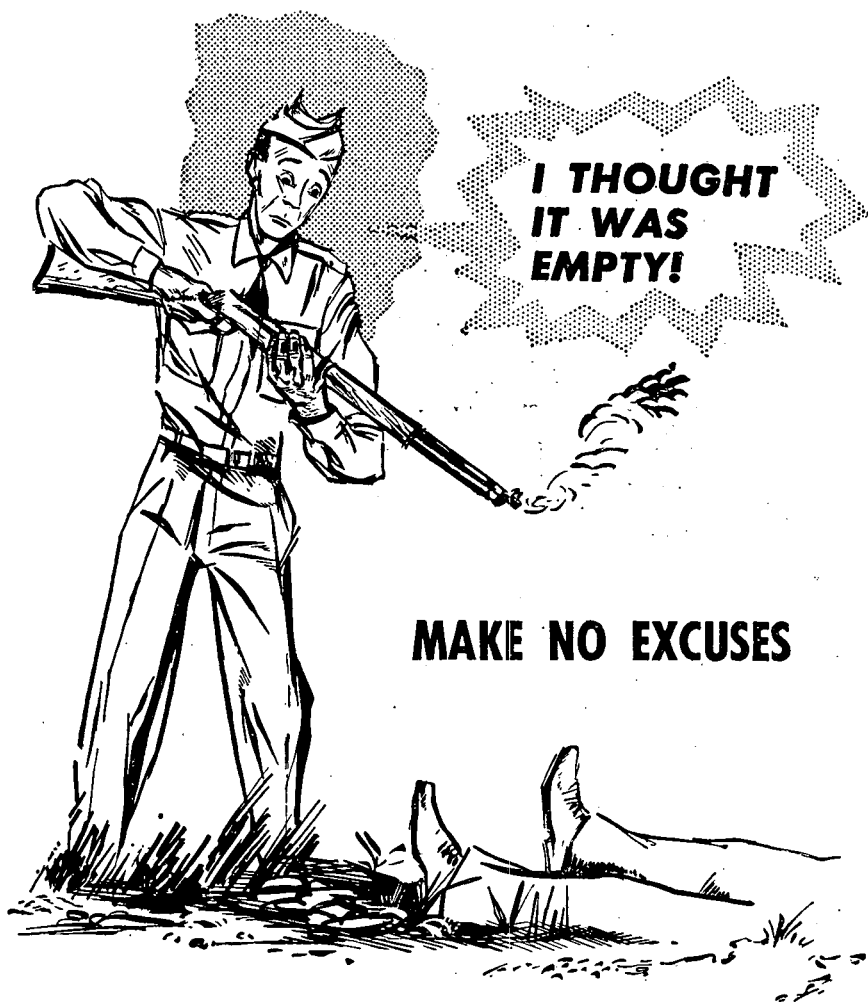


Figure 19. *Make no excuses.*

written lesson, should be used when actually presenting the material. As a last resort, memorize key statements.

55. Make No Excuses

Do not apologize or reflect an apologetic attitude (fig. 19). Do not make any comment that can be construed as an excuse for lack of preparation, lack of knowledge of the subject, lack of ability to teach it, or the conditions under which instruction must be given. Excuses only accent your weaknesses, many of which would not have been noticed had you not pointed them out to the students. Of course, the instructor must not appear arrogant and overconfident. Remember, "Do not make excuses. Your friends do not need them and those who are not friendly will not believe you anyway."

Section III. DEVELOPING EFFECTIVE SPEECH HABITS

56. General

Instructors will improve their speech only if they carefully analyze their speech, determine their weaknesses, adopt a plan for improvement, have a desire to improve, and practice speech improvement. Some of the ways to develop effective speech habits are:

a. Critical Understanding. First, develop a critical understanding of *why* the speech of others is either good or in need of improvement. While listening to a platform or radio speaker, try to analyze the speech techniques employed. In other words, become alert to how others speak.

b. Standards. Then, establish standards for your own speech. Through such measures as self-analysis, friendly criticism from associates, and listening to your recorded speech, find what your strengths are; work to make these stronger. Learn your weaknesses and work to correct them.

c. Practice. Finally, practice good speech at all times. Too often we have one set of speech techniques for the platform, others for conversation, and still others for home. Good speech should be practiced constantly. Make use of recordings, take every opportunity which comes your way to address an audience, and consider every period of instruction an opportunity to improve speech techniques.

CHAPTER 7

QUESTIONING TECHNIQUES

Section I. GENERAL

57. The Need for Questioning

The difference between the passive absorption of information and active learning often is in proportion to the use of questions. Instructors must insure that students give their attention to the subject, that they understand, and that they retain the material presented. One technique which instructors can use to accomplish these goals and insure more efficient learning is the use of questions—in a conference, in a demonstration, during a practical exercise, in a summary, and even after a lecture.

58 Advantages of Questioning

a. Increases Student Interest. Class interest increases when student participation is obtained by questions (fig. 20). Students generally are more interested in hearing one of their own classmates discuss material than in the instructor's explanation. They feel that they contribute to the instruction if they are permitted to ask questions and required to answer questions.

b. Stimulates Student Thinking. Students are more alert when they are held responsible for learning. They will pay close attention and think about the material presented if they know that questions will be asked. Instructors who use questions are developing an intent to learn.

c. Gears Instruction to the Class. Questions are the instructor's best check of the general level of ability in his class. If the students consistently fail to answer his questions, it means that he must present certain materials again, using a different approach. Questions also show misunderstandings which can be corrected on the spot.

d. Provides Opportunity for Expression of Student Attitudes. Students' answers to questions often indicate their interests and their attitudes towards the training program. Since instruction is ineffective without motivation, instructors must study student attitudes and, if necessary, modify these attitudes to make the student eager to learn.

e. Introduces New Material From the Pool of Class Experiences. Students, from reading or experiences, will have new ideas and new applications of the material in the lesson. Instructors must encourage contributions of this sort. Such participation stimulates interest and also adds material to the lesson.



QUESTIONS WILL . . .

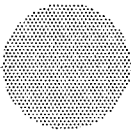
- 1. Increase student interest**
 - 2. Stimulate thinking**
 - 3. Gear instruction to the ability of the class**
 - 4. Provide opportunity for expression of attitudes**
 - 5. Introduce student experiences**
 - 6. Provide drill**
 - 7. Emphasize main points of the lesson**
 - 8. Test effectiveness of instruction**
- 

Figure 20. The value of questions.

f. Emphasizes Main Points and Provides Drill. Retention of material is facilitated by frequent recall. Frequent questions cause the student to recall and fix in his memory the important points of the lesson.

g. Tests the Effectiveness of the Instruction. Questions can be used to check the effectiveness of the instruction. If students are not able to answer questions, the instructor knows he has been ineffective. Questions will reveal the specific areas where the instruction has been the least effective.

59. The Conference Method

The conference method gives students an opportunity to participate directly by asking questions and answering questions. It places more emphasis on participation than does the lecture. When an instructor employs questioning techniques to stimulate active participation, he is using the *conference* method.

60. The Lecture Method

In the *lecture* method the instructor develops the subject entirely by himself, without class participation. Normally the lecture method should be used only when one or more of the following conditions exist:

a. The Class Is Large. The size of the class and the size and type of classroom determine whether conference or lecture should be used. The determining factor is whether or not students can make their questions and answers heard by the class. When they cannot, the conference is ineffective; the instructor must use the lecture and secure participation through practical exercises, examples, and training aids.

b. Many Ideas Must Be Presented in a Short Time. The lecture must be used when the time is too short to allow presentation of all material by other methods.

c. Basic Information Is Presented. Lectures are used to present the basic facts, principles, and attitudes needed to provide a common background in the subject.

d. Other Methods Are Introduced. The lecture is used to give directions for practical work and to set the stage for other methods.

e. Materials Are Summarized Rapidly. The lecture allows the instructor to summarize in a minimum length of time.

Section II. EMPLOYMENT OF QUESTIONING TECHNIQUES

61. Preparation for the Use of Questions

The use of questions requires careful preparation. Instructors should anticipate questions which might be asked and be prepared

to give sound answers. Planned questions should be used at various points to stimulate interest or to emphasize main points; these questions should be shown in the lesson plan. Extemporaneous questions should be used whenever they appear desirable.

62. Characteristics of a Good Question

Well-phrased questions are the key to effective questioning techniques. A good question should—

a. Have a Specific Purpose. Questions should be designed for definite purposes. One question may be used to emphasize a major point, another to stimulate thought, and another to arouse class interest and make students more alert. “Are there any questions?” may be used to give the students an opportunity to clear up misunderstandings; this question must be qualified by definite reference to the material covered and should be followed by a specific question if the class response is negative.

b. Be Understood by Students. Questions should be phrased in language and terms which are familiar to the students (fig. 21). The question should be so stated that a student who knows the answer has no difficulty in understanding what is wanted.

GOOD QUESTIONS



ARE UNDERSTOOD BY ALL STUDENTS

Figure 21. Good questions are understood by all students.

c. *Emphasize One Point.* Avoid asking two questions in one or asking a question in such a way that several other questions are needed to bring out the information desired.

d. *Require a Definite Answer.* Do not allow students to bluff. State the question so that a definite answer is required.

e. *Discourage Guessing.* Questions should be phrased so as to require an answer based upon information rather than upon guessing (fig. 22). Questions which suggest the answer should not be used. Avoid questions which require *yes* or *no* answers unless you require the students to explain their answers.



GOOD QUESTIONS DISCOURAGE GUESSING

Figure 22. Good questions discourage guessing.

63. Asking the Question

a. Address a question to the entire class before designating a student to answer. This holds the attention of the whole class. Each student is motivated to think and to form a tentative answer. If men know that a particular student will be called upon, they can relax; this results in wasted time and reduced efficiency in learning. The instructor should ask the question, pause, call upon a student, and finally evaluate his answer (fig. 23).

b. Distribute questions to draw all students into the class discussion. A seating chart may be used to insure distribution of questions.

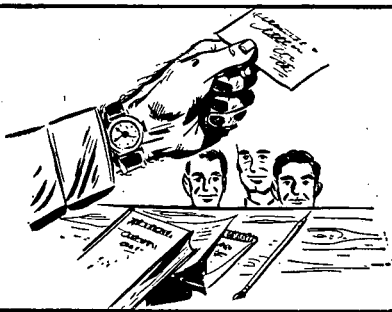
It is often desirable to ask questions of sleepy or inattentive students. Any set order tends to destroy class interest because each student knows in advance approximately when it is his turn. Do not confine questions to superior or interested students or to students whose names are easy to pronounce.

c. Ask questions in a natural, interested, conversational tone of voice. Students should not feel that the presentation has stopped and questioning has begun. Questions should be a part of the instruction and not a threat to the students.

HOW TO ASK QUESTIONS



1. ASK THE QUESTION



2. PAUSE



3. CALL ON THE STUDENT

4. RECOGNIZE THE STUDENT'S ANSWER

Figure 23. How to ask questions.

d. Encourage students to ask questions. The number of intelligent questions asked by students is often a good test of the validity of instruction. The instructor must not bluff if he cannot answer a question. He should tell the class that he will find the answer and give it to them later; then he must do just that.

64. Answers to Questions

Students' answers should meet certain standards:

a. A student's answer should be heard by all the class. Instructors should tell students to address their questions and answers to the class. A student's question must be heard, by repetition if necessary, before it is answered by the instructor or another student.

b. Concert or group answers should be avoided except to provide drill. Students should not answer without being called upon, but should be trained to hold up their hands if they wish to answer.

c. All answers should be recognized according to merit. Evaluate the answer so students will understand how much value to place on the response. Give proper credit where it is due. If necessary, elaborate or have the student clarify his answer if it is vague. Do not repeat answers unless it is necessary in order that all may hear.

d. Instructors should encourage student success in their answers to questions. Do not accept "I don't know" without some attempt to draw a positive response from the student.

e. Student questions should be answered by other students. The instructor should answer a question only when he cannot elicit the answer from other students.

CHAPTER 8

TRAINING AIDS

Section I. GENERAL

65. Definition of Training Aids

Training aids in a broad sense may include everything that assists in training. However, training aids should be distinguished from training equipment and training facilities. For the purposes of this manual, the items listed below, when used for training purposes, are classified as training aids.

- a.* Motion pictures, film strips, and recordings.
- b.* Graphic aids (charts, posters, transparencies).
- c.* Training devices (three-dimensional aids such as models, miniatures, cutaways, synthetic trainers).

66. Selection of Training Aids

There are many types of training aids; each has certain advantages and limitations, depending upon the mission of the lesson and the nature of the subject matter. Frequently it will be necessary to select more than one type of aid in order to present a lesson effectively. Instructors should constantly examine the subjects they teach with a view to developing additional training aids that will help the students to learn. The following publications contain training aids, information of value to the instructor:

- a.* FM 21-8, Military Training Aids.
- b.* SR 110-1-1, Index of Army Motion Pictures, Kinescope Recordings, and Film Strips.
- c.* SR 320-20-3, Index of Training Publications (includes list of DA GTA's).
- d.* AR 350-15, Military Training Aids.

Instructors should study these publications to find out what aids can be obtained through normal supply channels and to gain ideas for the construction of aids. It is especially important that instructors familiarize themselves with the facilities of any local training aids center or subcenter and its catalog listing the available Department of the Army, service, and local training aids.

67. Value of Training Aids

Training aids are essential to effective instruction. In the hands of good instructors they are powerful tools. Like skilled craftsmen,

instructors must know how to make the best use of the tools of their profession. They must be expert in the selection, procurement, construction, and use of training aids. Good instructors use training aids because they recognize their real value. The use of training aids helps the instructor to—

a. Develop Understanding. Most important of all the reasons for using training aids is that they make it easier for students to learn. Good aids simplify, add emphasis, and help to clarify difficult points of subject matter. Through their use, students' impressions become more intense, resulting in a clearer understanding of things taught. This is true not only with slow learners but also with students of high levels of intelligence. In addition, training aids help provide uniformity in the teaching of the lesson and frequently assist in the preservation of a continuity of thought. This is particularly true in training situations where students are required to remember a certain procedure or to learn such principles as that of fire and maneuver.

b. Appeal to the Senses.

(1) Learning begins with stimulation of the senses. The more senses involved in a learning process, the more likely it is that learning will take place. Words, whether written or spoken, fade away and are often inadequate to convey delicate meanings, understandings, and appreciations to the minds of students. By using training aids instructors are able to reach the minds of men through more than one sense channel.

(2) More people see alike than hear or read alike. For example, let us consider a situation in which members of a class on the caliber .50 machine gun are given an opportunity to read a description of how it functions, or let us assume that the instructor explains its functioning without the use of training aids. In both instances, the description itself may be accurate, but few members of the class will receive the same mental picture. Yet the same group, given an opportunity to see the functioning along with the instructor's explanation, will get mental images that will be quite similar and will correspond closely to the actual facts the instructor wants to get across. Because of its appeal to students through more than one sense channel, visual instruction is much more effective than words alone.

c. Save Time. Training aids not only enable students to learn more effectively but also help them to learn faster. It would be impossible to teach most Army subjects in the time allotted without the use of aids.

d. Interest the Student. Training aids add interest and vitalize the instruction. They focus the students' attention upon the lesson being presented. When properly used, they add variety to the presentation. In many training situations the fact that the actual object, a model, or

a training film is used adds realism to the subject, thus providing a means of motivation which helps maintain the students' state of readiness for learning.

68. Characteristics of a Good Training Aid

For an aid to serve its purpose effectively, it must have certain desirable characteristics (fig. 24).

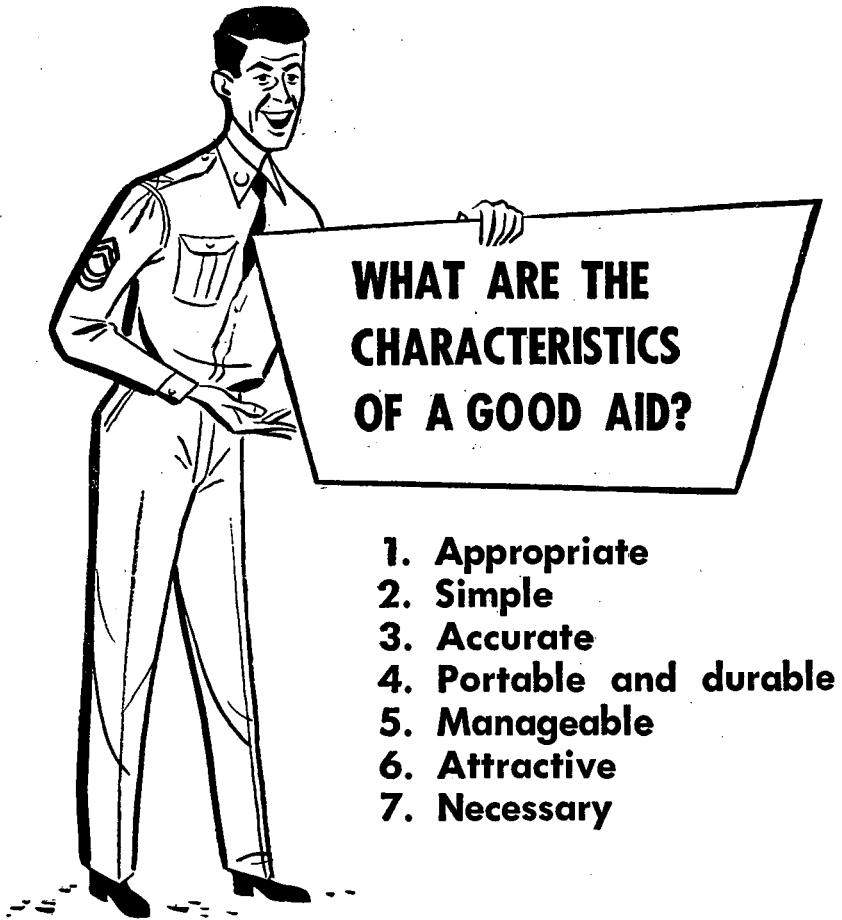


Figure 24. Characteristics of a good training aid.

a. Appropriate. Any training aid should be relevant to the subject matter under discussion and to the background of the class being taught. It should reflect good taste and judgment on the level of intelligence of grown men. In planning for the use of an aid, the instructor should consider the size of the class, the place where the aid will be used, and whether information on the aid is legible from the rear of the class.

b. *Simple*. Training aids should be easy to understand without involved explanation. They should be geared to the average training level of the class. "Rube Goldberg" type aids focus attention on the aid rather than the subject matter. All unnecessary information and details should be eliminated.

c. *Accurate*. Be sure that all facts and figures are correct and based on current doctrine.

d. *Portable and Durable*. Training aids should be light in weight or constructed so that they can be broken down into easily assembled components to insure portability. Since aids are frequently used out-of-doors, they should be constructed with materials that will withstand the elements and should be durable enough to take rough handling.

e. *Manageable*. An aid should be easy to operate and manipulate. It is true that intricate special devices are of value in certain types of training; but in most teaching situations the most valuable aid is one which is simple, neat, and practical. A good training aid should be designed to illustrate the lesson being taught without breaking its continuity. The aid should be so constructed that it can be presented to the class conveniently without distracting attention.

f. *Attractive*. The aid should attract the attention of the student. Neat, clear labels and correct spacing will lend eye appeal and make important points stand out. Color, used carefully, will emphasize main points; too much elaborate color is distracting.

g. *Necessary*. Each training aid should have a specific purpose. It should illustrate essential material and contribute to the successful accomplishment of the learning objectives. Training aids should never be used merely for "eyewash," to fill in time, or to entertain students. The use of too many aids tends to decrease their value to the presentation. The expense and effort of construction should be justified by the value of using the aid. It is not always necessary to construct a training aid; in many instances the actual item of equipment is better than any aid that can be fabricated. For purposes of economy, standard aids or locally produced charts should be used whenever they will accomplish the learning objective, in preference to fabricating elaborate models or cutaways.

Section II. PROCUREMENT AND FABRICATION OF TRAINING AIDS

69. Procurement of Training Aids

In paragraph 27 it was pointed out that the instructor himself is responsible for the selection of aids which are pertinent to his subject. Training aids centers or subcenters, located at major training installations, stock a wide variety of Department of the Army, service, and local training aids. In addition, these installations have facilities,

personnel, and funds to fabricate other training aids required by instructors. In some training situations instructors may find it necessary to make their own aids in order to accomplish their training objectives (par. 70).

70. Fabrication of Training Aids

Some of the best training aids are those constructed by instructors or by training aids centers or subcenters under their direction. In many cases, these aids can be made simply and inexpensively from scrap lumber, wrapping paper, or salvaged materials. Such salvaged items as motors, communication equipment, and vehicles furnish valuable materials for training aids.

a. Transparencies for Overhead Projector. The Overhead Projector, PH-637 (fig. 25), which projects large transparent slides onto a screen or flat wall surface, is widely used by the Army and is available through film libraries. Among its advantages is the fact that it can be used in a lighted and ventilated room, which permits students to take notes. Another advantage is that the instructor himself operates the projector while facing the class, thus maintaining eye contact with the students. A wide variety of transparencies are available from service schools and other agencies through training aids centers and subcenters. Instructors can prepare simple slides with the Visual Aid Transparency Kit, which is available on a loan basis from film libraries and training subcenters. Additional information is contained in TM 11-2323.

b. Material for Projection by Opaque Projector, PH-132.

- (1) Pictures, maps, or pages from field manuals can be projected on the PH 132, up to 6 inches by 6 inches in size. Material may be mounted on pieces of cardboard approximately 8 inches by 8 inches to facilitate positioning in the projector.
- (2) The opaque projector has one great disadvantage in that there must be total darkness if an effective image is to be secured.

c. Maps, Charts, and Diagrams.

- (1) Be sure each chart has a title or caption.
- (2) Maps should show a scale and include a north arrow.
- (3) All charts should be visible and readable from the rear of the classroom.
- (4) Make important parts stand out. Use color, underlining, various weights of lettering, etc.
- (5) Include only essentials.
- (6) Use an opaque projector to facilitate true-scale enlargement of small illustrations and maps. Project the subject onto a sheet of paper, then trace the projected image with a pencil, to make a professional-looking aid.

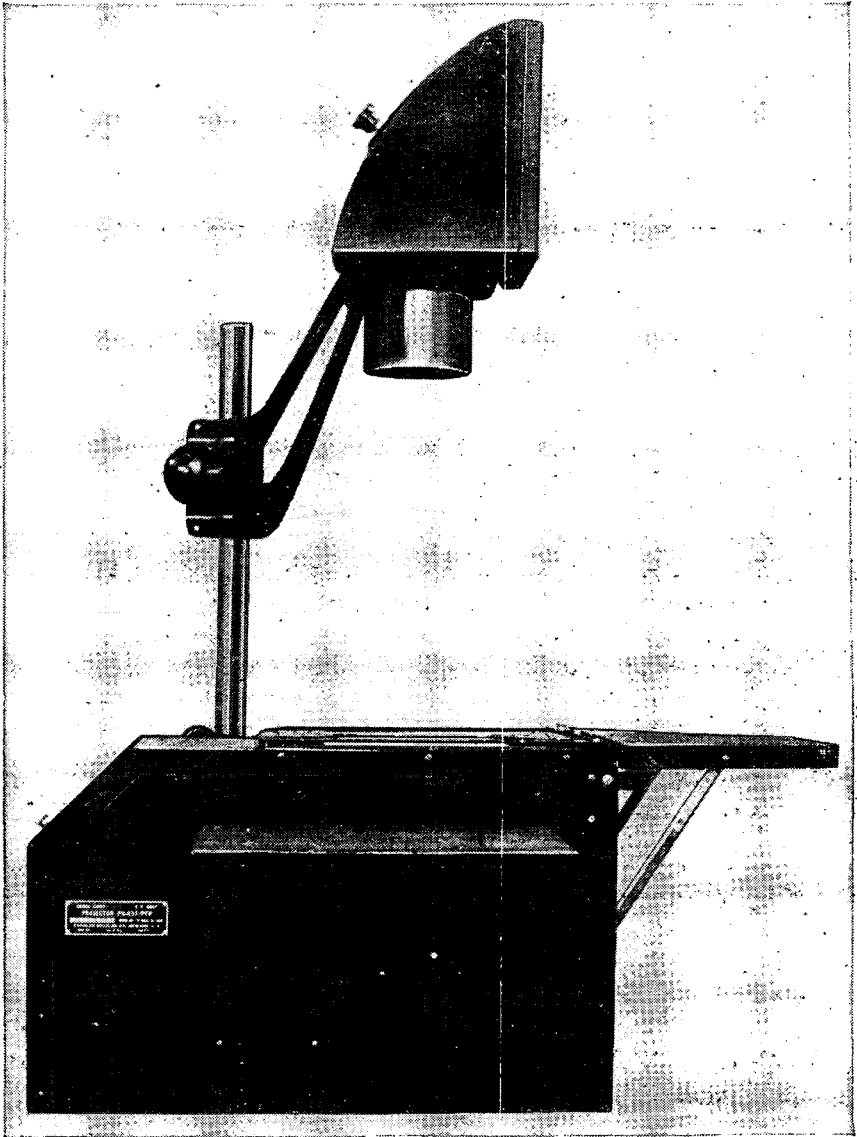


Figure 25. Overhead projector, PH-637.

Section III. TECHNIQUES IN USE OF TRAINING AIDS

71. General

a. Select the Appropriate Aid. Before selecting or constructing aids for a unit of instruction, review the lesson thoroughly to determine the points which need illustration. Then select or construct aids which will best enable you to put these points across. Do not use aids simply because they are available, nor organize the lesson

around available aids. In selecting aids keep in mind the chief reason for using training aids; helping students to learn the subject quickly and easily.

b. Prepare for the Use of the Aid. Know your aids thoroughly and be prepared to answer any questions concerning them. One of the best ways to prepare for the use of the aid is to rehearse the lesson several times, using the aid as it is to be used in the actual presentation. Make thorough advance preparation for using the aid. For example, in using Army graphic training aid portfolios or throw-over charts, those pages which are to be used in the presentation should be tabbed with paper clips or a similar device so that the instructor can quickly recognize the right charts. Another technique is to write lightly on each page the title of the next page to be used. Either technique will help smooth out the transition from one point to another.

c. Explain the Aid to the Class. Elaborate aids are often used to illustrate highly complicated and technical subjects. When such an aid is first shown to the students, give a brief explanation of its overall purpose or function (fig. 26). Otherwise students will attempt to find their own explanation of the aid and miss part of your presentation.

d. Keep Aids Covered When They Are Not in Use. Large charts can be covered by the simple expedient of tacking or stapling sheets of wrapping paper over them. If the chart contains lines of printing, strips of paper can be cut to the size of each line. These strips can be removed one at a time. Machinery, weapons, and similar aids can be covered with target cloth or some like material. Sheets of plain paper can be inserted into an Army graphic training aid portfolio to keep the pages covered until the instructor desires to use them. This will avoid distracting student's attention while the aid is being used.

e. Show Aid So All the Students Can See It. When using a training aid, display it so that every student in the class can see it (fig. 27). If the aid is a chart or graphic portfolio, view it from the rear of the classroom to make sure it is legible to everyone in the class. In many instances, a change in the seating arrangement will enable the students to see better. The finest aid is of no value if the students cannot see it.

f. Do Not Obstruct the Student's View of the Aid. Do not stand in front of the aid; do not put it behind the lectern (fig. 28).

g. Talk to the Class, Not to the Aid. Some instructors become so involved with their training aids that they completely forget the students. Even while disassembling a piece of equipment, the instructor should *maintain eye contact* with his class. When explaining a chart or blackboard drawing, stand as nearly as possible on the

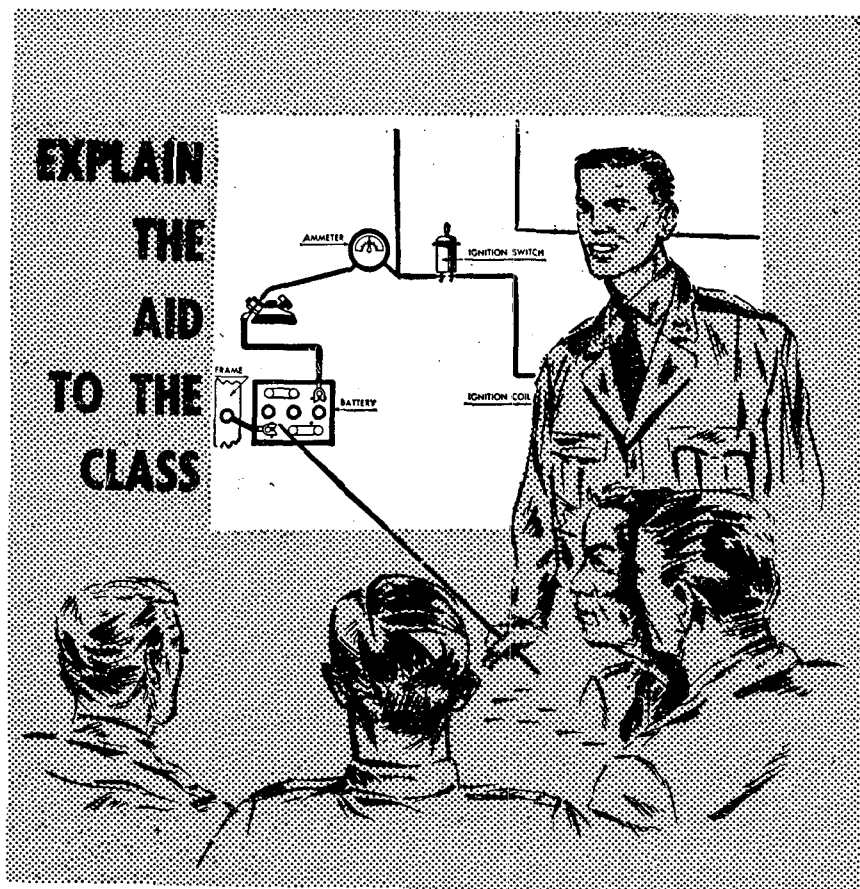
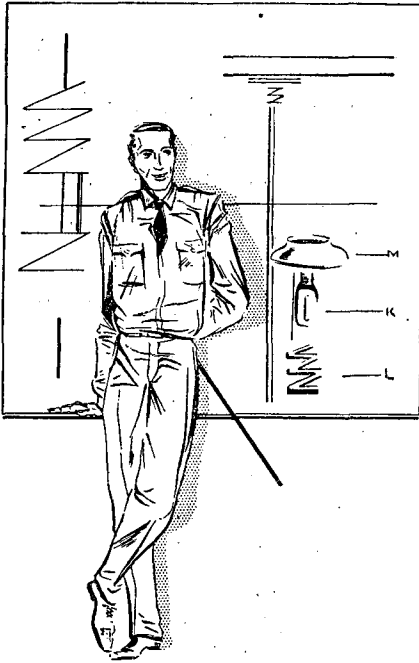


Figure 26. Explain the aid to the class.



SHOW AID SO ALL CAN SEE

Figure 27. Show the aid so all can see.



◀ **WRONG**

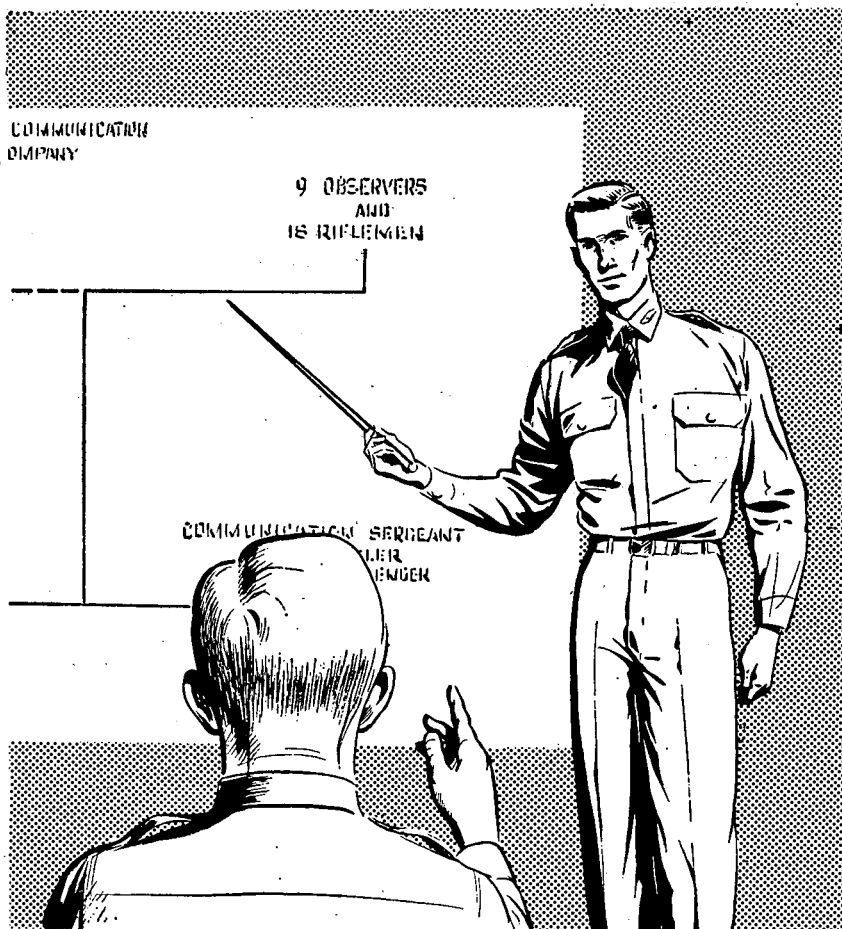
RIGHT ▶



Figure 28. Do not obstruct view of aid.

plane of the aid; this will help eliminate any tendency to talk to the aid rather than to the class. When drawing on the blackboard, finish the drawing quickly, then face the class and explain the point.

h. Use a Pointer. In most instances, a pointer is highly desirable in focusing the students' attention on a particular part of the training aid (fig. 29). When using the pointer, hold it steadily on the part of the aid which you want the class to observe. Holding the pointer in the hand nearest the aid will enable you to maintain better eye contact with the class. Holding the pointer across the body tends to cause you to talk to the aid rather than to the students. Put the pointer away when it is not needed; it is easy to acquire distracting mannerisms with a pointer which is not being used.



USE A POINTER

Figure 29. Use a pointer.

i. *Use Assistants to the Best Advantage.* If you use assistant instructors, make sure they are well rehearsed, so that they will know exactly what they are to do and when (fig. 30). If an assistant is to show projected aids for you, have a prearranged signal so that he will know when to change slides or cut off the machine.

j. *Display Aids Smoothly.* When using three or four large charts or sliding boards, number the boards in the order they are to be used. If heavy equipment is to be brought out during the class, make sure it can be moved in quietly without undue disturbance.



USE ASSISTANTS TO BEST ADVANTAGE

Figure 30. Use assistants to best advantage.

72. Using the Blackboard

The blackboard is perhaps the most widely used training aid. Nearly all classrooms are equipped with blackboards, and portable boards are usually provided for outdoor instruction. The instructor can place topics, questions, sketches, and diagrams on the blackboard, and can use it for listing teaching points and for developing situations from the class discussion. The following are some hints on how to use the blackboard (fig. 31):

a. Check on Equipment To Be Used. Obtain everything needed for blackboard work before the class meets—chalk, ruler, eraser, and other items.

b. Check for Glare. Be sure every student will be able to see the work. Check the lighting; sometimes it will be necessary to lower a shade or turn off certain lights. If the blackboard is too shiny, so that it glares, use wrapping paper as a board and draw with colored chalk (purple or black). Green chalkboards do much to overcome glare and eye fatigue; these boards can be constructed by painting a hard, smooth wood, such as plywood, with a flat green oil paint. Yellow chalk stands out more clearly than any other on these boards; however, green chalkboards lend themselves to use of more colors of chalk than do blackboards.

c. Keep Blackboard Clean. A dirty blackboard gives the impression that the instructor is not prepared.

HOW TO USE THE BLACKBOARD

1. CHECK ON EQUIPMENT TO BE USED.
2. CHECK FOR GLARE.
3. KEEP BLACKBOARD CLEAN.
4. PLAN YOUR WORK IN ADVANCE.
5. KEEP MATERIAL SIMPLE AND BRIEF.
6. PRINT AND DRAW LEGIBLY.
7. USE COLOR FOR EMPHASIS AND VARIETY.
8. DON'T CROWD YOUR WORK.
9. ERASE UNRELATED MATERIAL.
10. PREPARE COMPLICATED ILLUSTRATIONS BEFOREHAND.



Figure 31. How to use the blackboard.

d. Plan Your Work in Advance. Show layouts in the lesson plan. Before the class begins, use a pencil to sketch the work on the blackboard—the class cannot see the markings. The instructor can follow the penciled sketch when writing or drawing with chalk.

e. Keep Material Simple and Brief. Concise statements are most effective. One word, with oral explanation by the instructor, will often serve to clinch the point.

f. Print and Draw Legibly. Make sure that printing and drawings are visible throughout the classroom. Do not allow printing to decrease in size gradually. Make sure the first letter is large enough to be read easily, and keep the rest of the lettering of uniform height.

g. Use Color for Emphasis and Variety. Yellow and green are sometimes effective for underlining material. However, some colors do not show up clearly; try them in advance. It is worth the extra effort.

h. Do Not Crowd Your Work. A few well-spaced points are more effective than too many points crowded onto the blackboard.

i. Erase Unrelated Material. Having other work on the board distracts attention from the point you are making. Use an eraser or cloth, not your fingers.

j. Prepare Complicated Illustrations Beforehand and Cover Them With Paper. Strip them when needed. This saves time and makes the presentation smoother.

73. Hints on the Use of Training Films

The training film is effective in illustrating and demonstrating concepts and activities difficult to explain in the classroom in any other manner. Films are authoritative. They present standard instruction to successive and widespread audiences. They are effective in arousing emotions and changing attitudes. They teach faster and more fully than the lecture and can reach even students who have little education. Teaching given by training films is remembered longer. For maximum training value the instructor must use certain procedures in showing the film (fig. 32).

a. Carefully preview and study the film in advance. No training film is perfect. Select the key points to be emphasized, items which may be omitted or touched upon lightly, and portions which are obsolete or need explanation. Plan in advance your introductions and follow-up activities. Instructor's Film References are available through film libraries for most training films and will assist you in planning your presentation. The film references contain such information as the running time of the film, a short synopsis, suggested introductory remarks, and a suggested quiz at the end of the film.

b. Make a final check of the film and equipment prior to class. Insure that you have the proper film as well as a projector, spare fuses, film splicing material, extension cords, and a qualified projectionist.

c. Following this preparation, prepare the class for observing the film. Tell the students what the film is about and why it is shown, its battle importance, the key points to observe, and the relation of the film to earlier training, experience, or duties. Such procedures make the difference between merely showing training films and using them effectively as aids to instruction.

d. It may be desirable to stop the film in order to explain a difficult point or emphasize a key point.

e. Carefully plan your follow-up activities. Such activities may include an oral discussion to emphasize key points. An oral or written quiz can be used to advantage. In some cases, instructors will use demonstrations to emphasize procedures and techniques shown in the film. When practicable, the showing of the film should be followed by applicatory exercises; then, if time permits, it is advisable to follow up applicatory exercises with a second showing of the film as

part of the critique. Experience has shown that learning and retention are appreciably increased by a second showing, and, having taken part in the exercise, the student will gather more information the second time he sees the film.

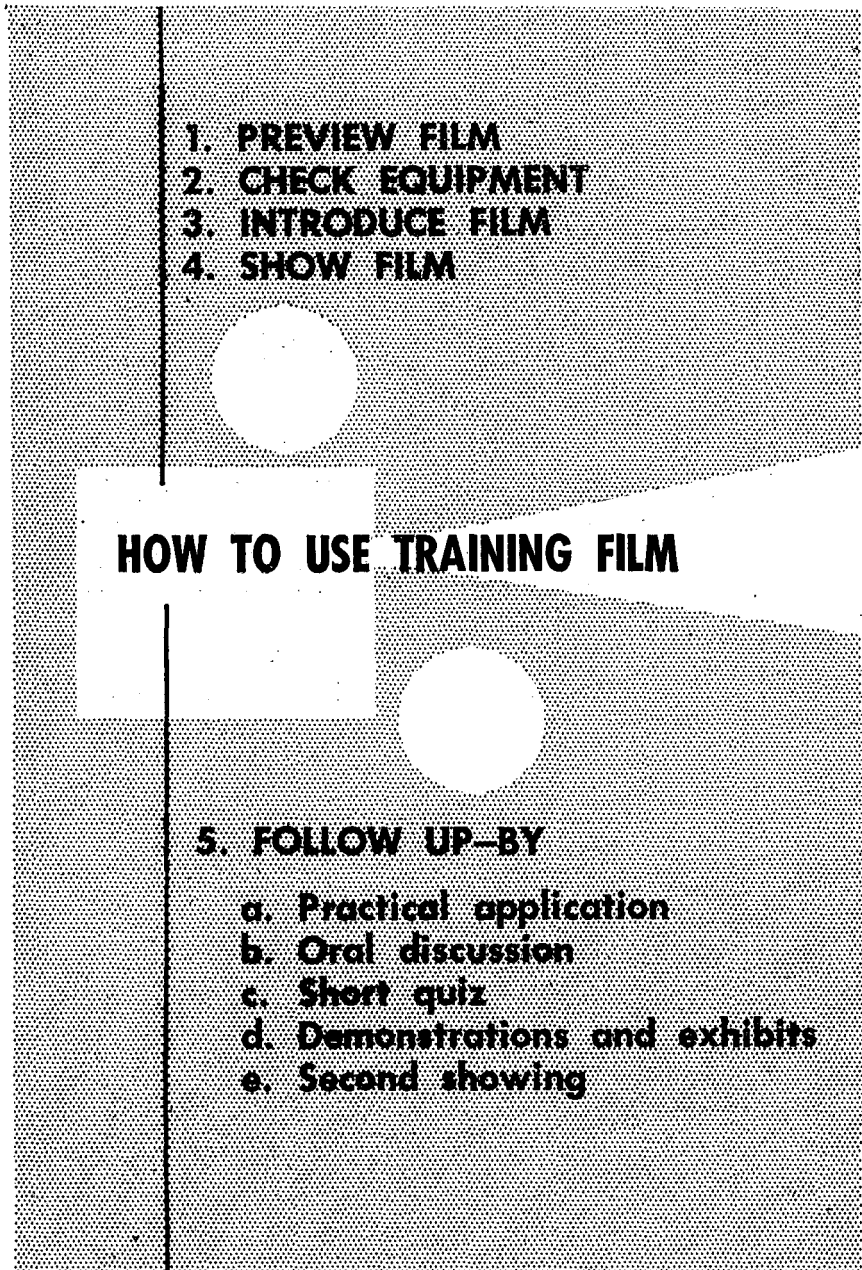


Figure 32. How to use training films.

CHAPTER 9

THE DEMONSTRATION METHOD

Section I. GENERAL

74. Importance of the Demonstration

The objective of virtually all military instruction is to train the soldier *to do*. Because of this emphasis on doing, Army instructors must *show* as well as *tell*. They must provide demonstration in the presentation stage to give the student a pattern for doing and to set standards of performance.

a. The effectiveness of the demonstration lies in its appeal to all the senses, rather than just the sense of hearing. Primarily its appeal is to the sense of sight, which is the most valuable of the senses for stimulating learning. The demonstration also stimulates a high degree of student interest. The effect of seeing that a thing can be done eliminates doubts in the minds of students that the skill is possible.

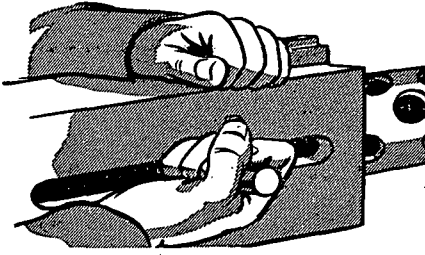
b. Whether or not these advantages of the demonstration are realized depends upon the instructor's planning and presentation, for a poor demonstration is worse than no demonstration at all. For Army instructors to use the demonstration method effectively they must understand—

- (1) For what purposes the demonstration can be used.
- (2) The forms which the demonstration may take.
- (3) What specific points should be observed in planning and giving a demonstration.

75. Purposes for Which the Demonstration Method Can Be Used

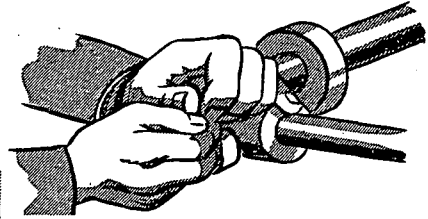
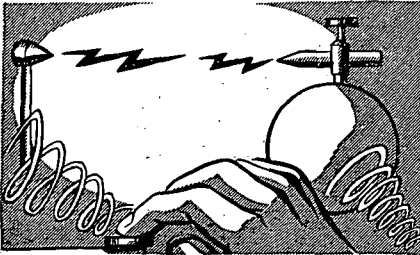
The demonstration is not a separate teaching method, but one to be used in combination with others. It is usually preceded and accompanied by an explanation employing either the lecture or the conference method, or both. When the demonstration is used to teach skills or techniques, it should be followed by practical work. Although the demonstration is most commonly considered as an introductory method of teaching skills and techniques, it can also be used to teach knowledge (fig. 33). The demonstration is effective—

a. *To Teach Manipulative Operations* (how to do it). Skills are physical acts performed automatically. They are learned by accurate and repeated practice. In training to develop skills, the demonstration serves to establish for the student a visual image of



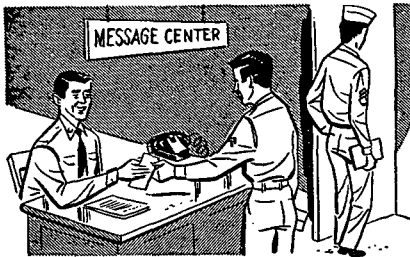
OPERATION OR FUNCTIONING

MANIPULATIVE OPERATIONS



THEORIES AND PRINCIPLES

TACTICAL MOVEMENTS



PROCEDURES

Figure 33. Uses of the demonstration.

how it should be done. A demonstration which sets out to show the right way of doing a thing must be perfect in every detail. Each step must be demonstrated slowly, "by the numbers," so that the students will grasp it thoroughly. Such military skills as the disassembly of weapons consist of a series of complicated movements and must be broken down into individual stages. Each stage must be demonstrated separately and then performed by the students before going on to the next. Instructors must remember that even the best students remember only a few images at a time; therefore the number of steps demonstrated at one time must be limited.

b. To Teach Principles and Theories (why it works). An understanding of certain basic principles is essential to the successful performance of the work involved in most technical fields. The demonstration can be used to develop this understanding.

c. To Teach Operation and Functioning (how it works). For example, in teaching the machine gun, the instructor may demonstrate functioning by using an enlarged cutaway model, or a training film, which reveals the movement of the component parts.

d. To Teach Tactical Movements (the way it is executed). Here the demonstration is used to teach how to apply skill and knowledge to solution of actual problems. The sand table may be utilized, or actual tactical maneuvers may be conducted in the field. In this way, standards and procedures are established. Showing what the whole activity looks like when skillfully performed creates interest and an appreciation of ultimate standards.

e. To Teach Procedures (how men work together). The operation of a message center, staff procedures, and other such activities can be taught by means of demonstrations. These demonstrations often take the form of skits or prepared exhibits. Procedures taught in this manner are realistic and specific in showing each man what he would do in his job.

f. To Teach Appreciations. A smooth, efficient demonstration will produce within the students an appreciation for the skill or technique being demonstrated.

76. Forms of the Demonstration

There are five general forms of the demonstration:

a. The Procedural Demonstration. This is the form of demonstration used to show and explain operation and functioning of equipment. This type of demonstration is usually conducted in the classroom and is used widely throughout basic and technical training.

b. Displays. These must be arranged so that students can view them quickly. This requires spreading the displayed materials so that each item can be seen by all students at the same time. For large classes use duplicate displays or divide the class into sections, the sections rotating from one exhibit to another.

c. Field Demonstrations (troop demonstrations). This form of demonstration is used widely in combat training. Complicated demonstrations can be shown one part at a time; later the complete performance can be shown. One phase must be properly assimilated before the next phase claims the students' attention.

d. Motion Pictures. Training films are readymade demonstrations. Here the student has the opportunity to see internal workings of equipment, or troops in combat—things they could otherwise only imagine.

e. Skits. Instructors or assistants may act out operations or procedures. This form of demonstration has proved an effective means

of demonstrating staff procedures, phases of first aid, military courtesy, and similar subjects. Skits guide student appreciations and attitudes. Skits may be designed to show the *wrong* way; however, the instructor must insure that the *right* way is obvious, or show the correct way later. Skits must be carefully planned and smoothly presented; this requires repeated rehearsals. The same procedures which apply to the showing of a film (par. 73) also apply to the use of the skit.

Section II. CONDUCT OF THE DEMONSTRATION

77. Specific Points To Be Observed in Planning and Giving a Demonstration

The physical setup for a demonstration requires special attention. It is necessary to arrange for use of equipment, tools, and related materials. If students are to perform the operation following the demonstration, arrangements must be made for conducting the practical work. Observe the following points:

a. Plan the Details of the Demonstration Carefully. Careful planning of the following is essential for an effective demonstration:

- (1) Arrange all tools and equipment to eliminate any loss of time. If they are to be moved in during the demonstration, arrange them so that they can be moved quickly and quietly.
- (2) Make sure that all students can see and hear. Consider the size of the class and the equipment to be used, and the length of the demonstration. If engine or equipment noise makes it impossible for the students to hear, the instructor must not talk until the noise has subsided.
- (3) A lesson plan is essential to insure that the accepted technique for performing the operation is followed. This, in turn, will promote the development of exact habits and techniques in the students.
- (4) Keep a specific purpose in mind. Demonstrate one thing at a time. Students should be able to recognize distinct breaks between the phases or steps of the activity being demonstrated. If it is necessary for students to learn more than one way of performing an operation, a *separate* and *distinct* demonstration should be given for each method to be taught.

b. Be Alert to Your Class.

- (1) Be sure students can see. Position yourself to one side, or behind the piece of equipment, so as not to obstruct the view. Sometimes it may be necessary to repeat a performance several times to insure that all students have seen it completed. Sometimes it may be necessary for the instructor to turn his back on the group; in this case he should talk over his shoulder to the class.

- (2) The instructor must remain attentive to the operation being demonstrated and at the same time should maintain eye contact with the class. In almost every demonstration he can at least glance at the class occasionally and in other ways show that he is addressing the students and not the equipment.
- (3) Check frequently to make sure that all students understand. At the conclusion of each predetermined major step in an operation, ask questions to verify the understanding.
- (4) Encourage students to ask questions at frequent intervals, but only between major steps of the operation. Students should not be allowed to interrupt the demonstration of a step.
- (5) When equipment is being used in a demonstration, additional training aids may be helpful. For example, a large chart or model is valuable to show how to make fine adjustments on a small item. Cutaway models may be used to show the adjustment of parts concealed by a covering or housing. In demonstrations consisting of several steps or phases, it is a good idea to list each step, as it is performed, on a chart or blackboard. This helps the students to remember the steps in proper sequence.
- (6) A summary must be used at the completion of a demonstration. This summary should include an enumeration of all steps in the order in which they were demonstrated. Brief summaries should also be used after each individual step.

c. Coordinate the Explanation and Demonstration. Show how and explain how at the same time. Immediately before each step, tell exactly what you are going to do next. During the step, explain what is being done, and indicate why the step must be performed in a particular manner. Time explanations so that only short pauses occur between remarks. Eliminate awkward gaps. The interest and attention of the class are diverted when a delay occurs, for example, in bringing in an item of equipment. Effective use of assistants will help in this respect. Rehearse the demonstration to check procedures and to insure that every instrument or piece of equipment will function properly. Students lose confidence in instructors who experience difficulty; too, blunders are distracting. If the demonstration contains a particularly difficult step that is likely to cause difficulty, acquaint the students with this fact *before* beginning on the operation, requesting their close attention and their consideration.

d. Emphasize Safety Precautions. General safety precautions, rules, and regulations should be taught early in the training program. These should be reiterated, and specific precautions pointed out, during demonstrations.

78. How the Instructor Can Improve His Demonstration

Self-evaluation and seeking the help of supervisors should be a continuous procedure. It is difficult for an instructor to objectively evaluate his own work; however, use of a check list containing the major points discussed in this chapter will help in making a self-evaluation.

CHAPTER 10

THE APPLICATION STAGE

Section I. APPLICATION IN ARMY TRAINING

79. Application as a Stage of Instruction

a. Definition. Application is learning by doing. To learn to *do*, men must be *told* what to do, *shown* how to do it, and then *practice* until they are able to do it (fig. 34). An analysis of soldiers' duties reveals the importance of *doing*; the things they must *know* are usually supplementary to *doing*. Instructors must remember to *tell—show—do*, emphasizing supervised student activity.

b. Application in the Teaching Process. Application is combined with other stages of instruction. It may come anywhere in the lesson, but normally it should come immediately after the explanation and demonstration. It is desirable to use comprehensive applicatory exercises at the end of lessons; this causes students to relate facts, principles, and procedures from several areas of knowledge, thus gaining an understanding of the job as a whole. Application is often combined with examination to evaluate student progress and check effectiveness of the instruction.

c. Opportunities for Application. Opportunities for application can be found in most Army instruction. For example, through application—

- (1) Soldiers can learn to inspect and operate tools, weapons, and equipment, and to perform close and extended order drill.
- (2) Sand tables can be used to work out tactical operations, command post exercises, camouflage techniques, and sanitation layouts.
- (3) All personnel can be taught movement under enemy observation or fire, scouting techniques, terrain sketching, and use of the compass.
- (4) Men can learn the procedures to be used when a gun stoppage occurs, effect of wind on sight adjustments, determination of speedometer multipliers for marches, and construction of strip maps and circuit diagrams.
- (5) Supply clerks can fill out requisitions, reports of survey, shipping forms, and bills of lading.
- (6) Administrative clerks can be given problems relating to morning reports and service records.
- (7) Officers can learn how to solve such problems as time, length, traffic flow, and density of motor columns.

TO TEACH MILITARY SKILLS

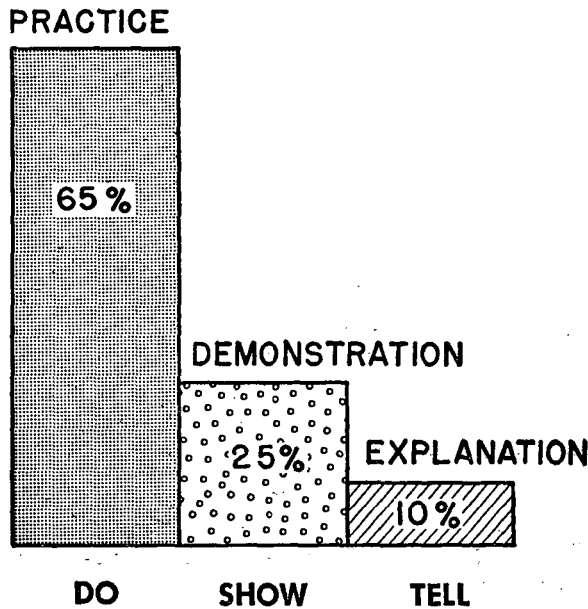


Figure 34. Steps in teaching military skills (approximate time spent).

80. How Skills and Techniques Are Learned

In the application stage, soldiers develop physical or mental skills and techniques, or learn how to solve problems. The learning phases of these processes are as follows:

a. Learning a Skill. Three basic phases are involved in acquiring a skill (fig. 35).

- (1) Building a concept of the skill—learning of what the skill consists. This is usually accomplished by:
 - (a) Demonstration.
 - (b) Explanation.
 - (c) Directing students to other information, such as study assignments, instructional sheets, and similar references.
- (2) Developing the skill.
 - (a) The student imitates the demonstration.
 - (b) His activities are directed.
 - (c) The instructor evaluates progress and encourages the student to evaluate his own progress.
- (3) Practice for accuracy and speed and to make the act or procedure automatic.

LEARNING A SKILL

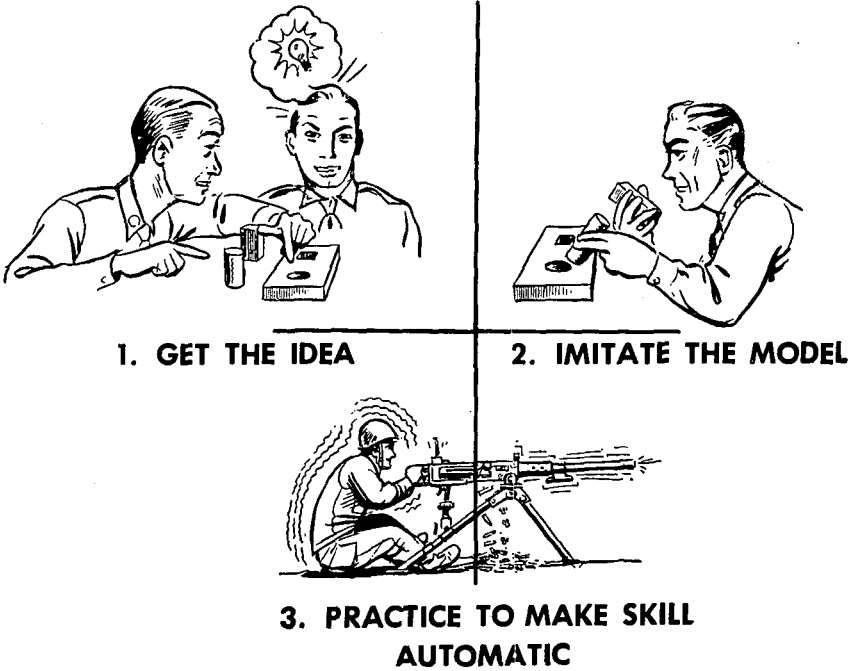


Figure 35. Learning a skill.

b. Problem Solving. The most important thing in developing problem-solving techniques is to teach how to solve problems rather than how to arrive at an approved solution. The student should use a thought process similar to that used in the estimate of the situation. Briefly this process is—

- (1) Recognize the problem.
- (2) Assemble data bearing on the problem.
- (3) Suggest solutions.
- (4) Evaluate the possible solutions.
- (5) Accept the best solution as the course of action.

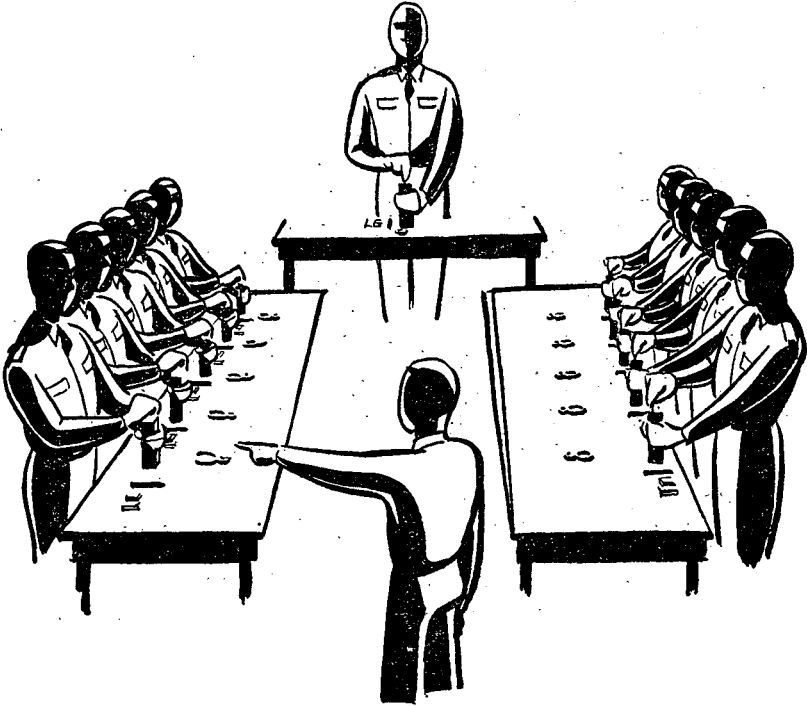
81. Basic Methods Used in the Application Stage

There are several methods of employing application. The best method to use depends on the state of training and the skill being learned.

a. Controlled Practice Method (Group Performance).

- (1) In controlled practice all men in a class do the same thing, at the same rate and at the same time, under the supervision of instructors (fig. 36). The steps in this method are—
 - (a) Explain and demonstrate a step in the procedure while students observe.

CONTROLLED PRACTICE OR GROUP PERFORMANCE METHOD



- 1. EXPLANATION & DEMONSTRATION**
- 2. IMITATION**
- 3. CORRECTION OF ERRORS**

Figure 36. Controlled practice method.

- (b) Talk the students through an imitation of the demonstration.
- (c) Correct errors.
- (2) This procedure is applied to each step until the operation is covered completely. Initial application in most skills and operations, such as the disassembly of weapons, should be taught by the controlled practice method.
- (3) Controlled practice affords maximum control and observation of student activities, facilitating on-the-spot correction of errors in the imitation step. Clear directions are essential; for example, at the beginning of a lesson on the disassembly of a weapon, the instructor should tell the class that—
 - (a) He will explain and demonstrate step by step the process of disassembly.
 - (b) Students are to give careful attention to the explanation and demonstration.
 - (c) Students are not to perform the step until after the explanation and demonstration and then only when the instructor tells the entire class to start.
 - (d) Students are to perform only the step demonstrated and at no time get ahead of the instruction.
- (4) Controlled practice is especially suited to the first two steps in learning a skill: gaining the concept and perfecting the movement pattern. The last step, making the skill automatic, must be carried on by a method which does not limit the student: independent practice.

b. Independent Practice Method. This method allows the student to work at his own rate of speed and to perform an operation as a whole (fig. 37). Through independent practice he can establish the skill so that it becomes automatic. The student works at his own speed, without control but with supervision.

c. Coach-and-Pupil Method. This method is used for teaching students who have mastered the basic fundamentals of a skill. Students are paired off and act alternatively as coach and pupil under direction and supervision of the instructor and his assistants (fig. 38). Properly applied and guided, this method will cause students to think as well as do; it will develop initiative, reliance, and skill in giving directions and commands. It lends itself to the teaching of such subjects as bayonet practice, unarmed defense, first aid, and marksmanship.

d. Team Practice. In the application stage the student should be trained first as an individual and then to make him a part of a team, such as a tank crew, a rifle squad, or the crew of a crew-served weapon. Team practice exercises, in which students serve as team members, normally are conducted in two phases: first, a *walk-through-by-the-*

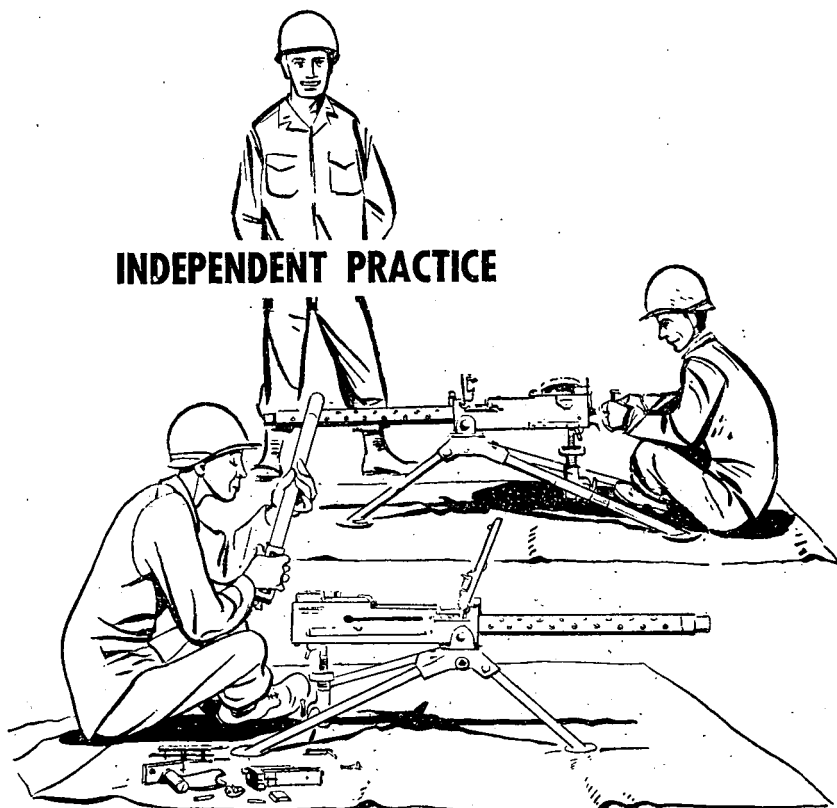


Figure 37. Independent practice.

numbers practice in which techniques are emphasized; second, opportunities to apply these techniques in a realistic situation.

- (1) *First phase.* In the *walk-through-by-the-numbers* phase, only team fundamentals should be stressed. To introduce simulated battle conditions too soon and too suddenly will tend to obscure the learning of fundamentals. Instructors make on-the-spot corrections.
- (2) *Tactical phase.* As teams master the fundamentals, the applicatory exercises should be expanded in scope so that all phases of combat operations are included. A great variety of individual subjects should be fitted together into a single training period; conditions and requirements should be varied so that team members will develop judgment and facility in applying skills and techniques to solutions of new and varied tactical problems.



COACH & PUPIL METHOD

Figure 38. Coach-and-pupil method.

Section II. CONDUCT OF PRACTICAL WORK

82. General Considerations for Practical Exercises

Several general considerations in planning and conducting all types of application will enable the instructor to anticipate many problems and plan a more effective application stage.

a. Students Must Be Motivated To Learn. Learning will result in the application stage if understanding of the materials taught is developed by effective instructional techniques in the presentation stage, and if students are motivated to put these materials into practice. Motivation, in the application stage, can be accomplished in the following ways:

- (1) *Set definite objectives.* Be sure the soldiers know what they are to do and why it is important. Be sure that the exercise emphasizes a few simple principles, rather than a number of complex situations which may confuse the students. State the objective in terms of student behavior rather than subject matter; for example, "determining direction" will motivate student performance more than "map reading, azimuth and declination."
- (2) *Evaluate progress made.* Knowledge of one's progress is a very effective incentive. At appropriate intervals inform the student of the quality of his performance. If it is satisfac-

tory, the feeling of accomplishment spurs him to further effort; if it is unsatisfactory, he becomes conscious of the need to improve and will usually strive to improve his record. Judicious praise stimulates the learner, but commendation should not be used to the extent that it becomes ineffective.

- (3) *Use competition.* In application there are many opportunities for the use of competition. Students may compete against their past records, with each other, individually and in groups, and with standards set by instructors. Competition which is properly conducted will motivate students to whole-hearted effort.
- (4) *Vary procedures.* Variety is the enemy of monotony. One of the best ways to overcome the drudgery of a long practical work period is to vary the procedures employed.
- (5) *Make application realistic.* Strive for realism in the application stage whenever the activity is such that realism is an important element. This motivation technique is best used in team performance activities. Some individual types of application, such as use of the compass, preparing individual field fortifications, and tactical training of the individual soldier, make wide use of realism to motivate learning.

b. Be Sure That Practice Does Make Perfect. Soldiers will do in combat about the same things they do in training; their performance must be perfected in the practical exercises of the training program. In order to set up applicatory exercises which will enable students to approach perfection, the instructor must consider the following principles:

- (1) *Make a correct start.* The most common procedure for giving the learner a correct start is to demonstrate the act to be performed, then let him practice it. The group performance method is especially effective in making a correct start.
- (2) *Provide practice or drill exercises.* Exercises should provide for repetition. Single out a specific habit for isolated practice—for example, practice in tackling in the training of a football team. When a series of specific habits are needed in the performance of an act, exercises for each habit should be provided; then these habits should be practiced together in an exercise which closely approximates a real situation. The number of exercises should vary with the difficulty of the response desired.
- (3) *Employ problem-solving techniques.* These will be especially valuable in team performance exercises and in situations where students have developed some skill through practice. The use of problems will serve to motivate the student and will make the instruction more realistic.

c. Group Control Is Very Important. During application the instructor must be careful to prevent faulty learning and to keep the students busy. He must realize that efficient class management is much more difficult during application than during explanation or demonstration.

83. Techniques for Conducting Practical Exercises

Instructors can facilitate learning during practical exercises if they follow a few basic principles (fig. 39).

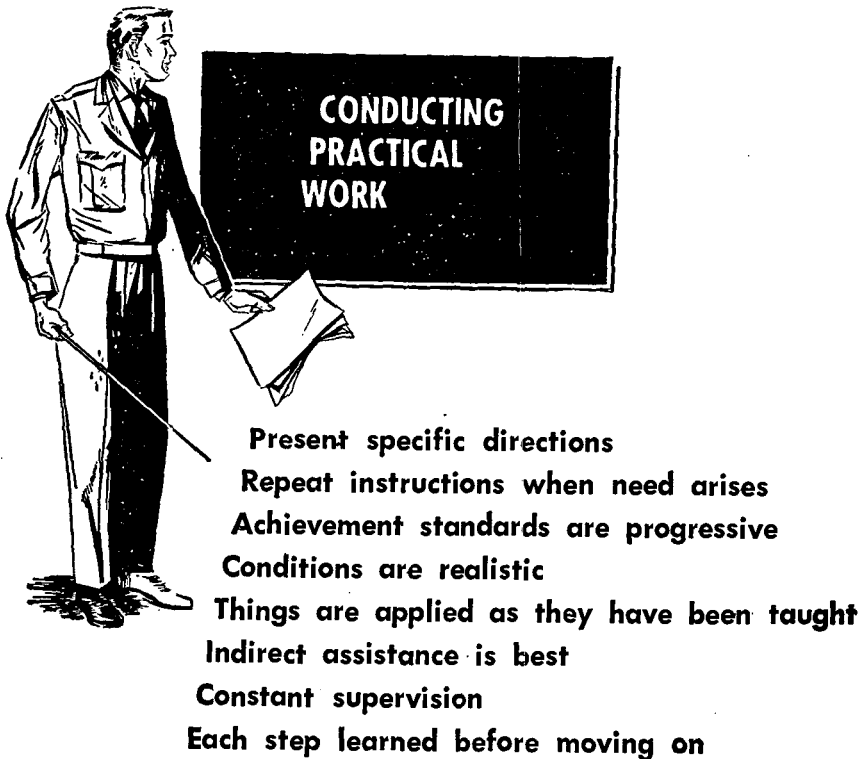


Figure 39. Conducting practical work.

a. Present Specific Directions. Be sure every student knows what he is to do, why he is to do it in the manner described, and where he can obtain help. The instructor must anticipate most of the questions that will arise and be prepared to answer them clearly and concisely.

b. Repeat Instruction When the Need Arises. If the majority of students seem to have missed certain fundamental points, the explanation and demonstration should be repeated for the entire class. If only a few students require additional instruction, assistant instructors can give such instruction to individuals or small groups apart from the rest of the class.

c. *Achievement Standards Are Progressive.* In initial applicatory exercises, the student should perform each step thoroughly and accurately under close supervision. In succeeding exercises, students should be raised progressively—better and faster work should be required, and less assistance should be given. Merely to repeat an activity has little value unless higher standards are set. Soldiers must be made to realize the progressive nature of their practical work or they will feel that the exercise is something designed merely to keep them busy.

d. *Conditions Should Be Realistic.* Keep conditions of the applicatory exercise as nearly as possible like those that would be encountered in battle or other actual use. In the initial exercises, however, it is often more important to provide ideal conditions than to insist on realism, so that the students can learn to perform correctly; realistic conditions can then be introduced in succeeding exercises.

e. *Things Should Be Applied as Taught.* Perfection is achieved through practice only if the student practices the right movements and procedures. The instructor must, through careful supervision, make sure that students practice the skill or technique correctly.

f. *Indirect Assistance Is Best.* The initiative and resourcefulness so necessary for success in battle can be developed in the application stage only if instructors train men to depend on their own abilities in the solution of problems. Instructors must prevent the formation of faulty habits, but at the same time they must encourage soldiers to use their own resourcefulness. After the initial applicatory exercises, most assistance should be indirect.

g. *Constant Supervision Is Imperative.* The fact that students are busy is not a guarantee that learning is taking place. The instructor must insure that he can give affirmative answers to these questions:

- (1) Do the students know the *what*, *how*, and *why* of the activity?
- (2) Does the activity contribute to the realization of the objective?
- (3) Are the students performing according to instructions?
- (4) Is maximum use being made of equipment, materials, and personnel?
- (5) Are safety measures being observed?
- (6) Is ample time provided for proper completion of the performance?
- (7) Are the students constantly improving?

h. *Each Step Must Be Learned Before Moving to the Next.* Do not introduce too many operations, procedures, principles, or problems at any one time. Introduce a few learning activities, provide for adequate practice, review and critique of the material taught and practiced (pars. 100–102), and examine the students' work; then if they are proficient, proceed to the next stage.

CHAPTER 11

THE EXAMINATION STAGE

Section I. GENERAL

84. The Use of Tests

The use of tests or examinations to evaluate student performance is a necessary step in the teaching process. Commanders must use tests to determine overall training progress, and instructors must use tests to check on the effectiveness of instruction. It cannot be assumed that men have learned until the examination stage of instruction has revealed a desirable standard of achievement.

85. Why Give Tests

The use of tests in Army training accomplishes four major purposes (fig. 40).

a. Tests aid in improving instruction by—

- (1) *Discovering gaps in learning.* Properly constructed tests reveal gaps and misunderstandings in student learning. If frequent tests are given, such weaknesses can be discovered and instructors can correct them by reteaching their material.
- (2) *Emphasizing main points.* A test is actually a valuable teaching device in that students tend to remember longer and more vividly those points which are covered in an examination. Tests encourage students, as well as instructors, to review the materials that have been presented and to organize various phases of instruction into a meaningful set of skills, techniques, and knowledge.
- (3) *Evaluating instructional methods.* Tests measure not only student performance but also instructor performance. By studying the results of tests, instructors can determine the relative effectiveness of their various methods and techniques.

b. Tests provide an incentive for learning. Students learn more rapidly when made to feel responsible for learning. For example, they are more likely to pay close attention to a training film if they know a test will be given when the picture is over. Generally, instructors who give frequent tests will find that their students will be more alert and learn more. There is a danger, however, in overemphasizing tests and test results as the basic motivation for learning. Student interest in test scores is a superficial one which can easily lead to efforts to "hit the test" rather than learn the subject matter for

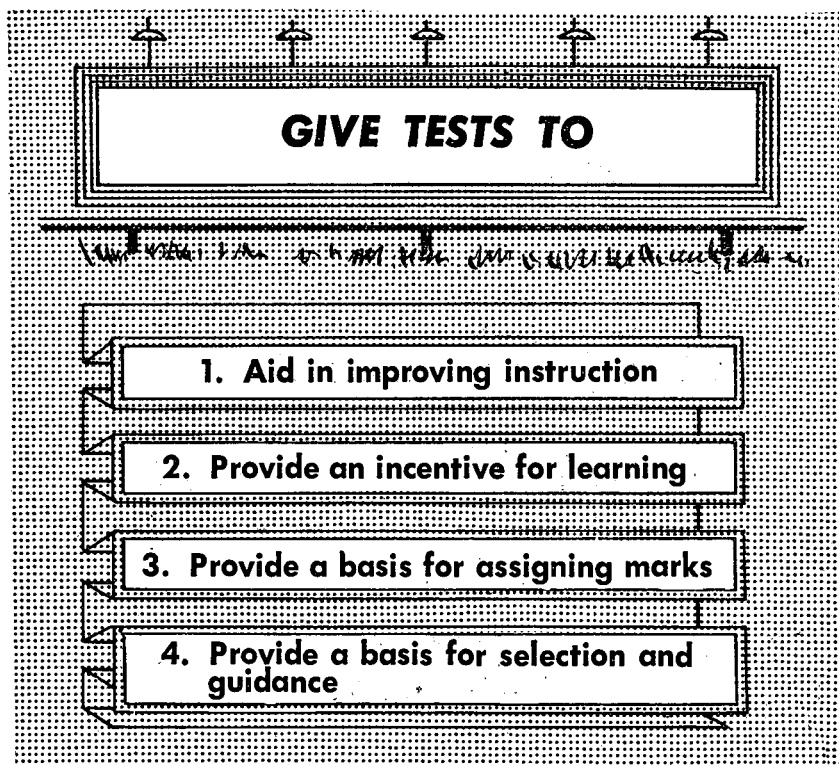


Figure 40. Why give tests?

its value in the future. Students who study primarily to pass tests may forget what they learn much faster than those who are interested in learning because of the real values to be derived. The instructor should give rigid tests and give them frequently, but they should be designed to require the student to make application of what he has been taught.

c. Tests provide a basis for assigning grades. Another purpose of testing is to determine which students have attained the minimum standard of performance and which have not. In many cases it is desirable to indicate the extent to which students exceed or fall below the standards required. Students learn different amounts; the grade recorded for each student should be an accurate index of what he has learned. Unless a sound testing program is employed, it is impossible to determine the relative achievement of students.

d. Tests furnish a basis for selection and guidance. Instructors should be familiar with those Army aptitude tests which are especially designed to help in the initial classification of men and their subsequent selection for various Army assignments. In addition, the results of training achievement tests furnish valuable supplementary

information for selection and guidance of personnel. If tests are well constructed and actually measure student performance, the test results become a valuable basis for determining whether a student should be placed in a new job, whether he should receive advanced training, or whether he should be recommended for promotion to a job requiring greater ability.

Section II. FORMS OF TESTS

86. General

Testing techniques used by instructors can be classified in three major categories: oral, written, and performance tests. Observation techniques, which are closely related to the performance test, are also used to evaluate student learning. Each form has its specific uses, advantages, and limitations; in a well-rounded test program, all techniques may be used.

87. Oral Tests

Oral test questions enable the instructor to make an effective spot check of student learning. They should be used in practically every lesson. The characteristics of good oral questions and questioning technique are discussed fully in paragraphs 57 through 64.

88. Written Tests

Written tests are of great value in measuring information. Short-answer type written tests have the added value of affording a rapid measure of student knowledge over a large area of subject matter. Written tests can only indirectly measure a student's ability to apply knowledge and skills. In most Army training programs, performance tests should be relied on to determine whether a student can actually perform a skill or technique.

89. Performance Tests

A performance test measures how well students can do or perform a given piece of work. They are required to make, service, repair, operate, shape, assemble, or disassemble something, and are checked on their speed and accuracy. Performance tests measure skill, information, ability to apply knowledge, ability to solve problems, and aptitude for training.

a. Advantages of Performance Tests.

- (1) A performance test is the most direct means of finding out whether men can actually do a job and do it well. A student who can easily pass a written test on how to reline brakes may commit several errors while actually carrying out the task.

- (2) Performance tests reveal, better than any other type of test, specific difficulties that students encounter when doing a job. In a situation where students are required to service, repair, shape, assemble, or disassemble something, a performance test is the only effective way of revealing whether students—
 - (a) Handle their tools effectively.
 - (b) Observe all necessary safety precautions.
 - (c) Carry out the operations in the correct order or sequence.
 - (d) Become emotionally upset when unable to do any part of the job.
 - (e) Fail to care for their tools properly when they have finished their work.

b. Construction of Performance Tests.

- (1) Examine the course of study to determine what portion of the content should be tested by some form of performance test.
- (2) Determine whether the necessary tools, equipment, and space for giving the test are available.
- (3) See that the test coincides with a practical situation.
- (4) Consider the time it will take to give the test. If all the students will not be able to take the test at one time, plan the activities of those who will be awaiting their turn.
- (5) Prepare specific directions for taking the test; be careful to show its purpose. Be sure to use language that the students can understand.
- (6) Prepare directions for the examiner to follow while administering the test.
- (7) Prepare a check list for scoring the test (fig. 41).
- (8) "Guinea-pig" the test by giving it to assistant instructors; make necessary changes to correct flaws thus discovered.

90. Observation

Observation and observation techniques are of great importance in Army training because many phases of student achievement and behavior cannot be measured by the more formal kinds of tests. The observer should—

a. Select Phases of Conduct That Provide Evidence of the Quality Being Judged. If the problem is to evaluate students on leadership, observers must see the students in situations that permit them to demonstrate their leadership ability, such as giving commands, directing activities of a small unit, making and executing decisions. Similarly, to judge a student's ability as an instructor, he must be observed as he handles classes under varying conditions.

b. Make the Observations Comprehensive. Do not evaluate students on the basis of a few characteristics; consider all important

WIRING and TIMING an "in line" gasoline engine

Student _____ Section _____ Date _____

Engine number _____ Assistant instructor _____

PART I (5 points): Time required to wire and time the engine.

Time started _____ Time completed _____

SCHEDULE OF TIME AND POINTS EARNED

Within 15 minutes - 5 points	25 to 30 minutes - 2 points
15 to 20 minutes - 4 points	30 to 35 minutes - 1 point
20 to 25 minutes - 3 points	Over 35 minutes - 0 points

(Student not to stop test if not completed in 35 minutes.)

Points earned by the student (Encircle one) 5 4 3 2 1 0

PART II (10 points): Check student on each point.

A. CHECK WHILE STUDENT IS TAKING THE TEST.		YES	NO
1. Battery ground cable disconnected until wiring completed.	1	0	
2. Grounded battery terminal tested for spark before connecting to battery cable clamp.	1	0	
3. Engine starts the first time.	1	0	
4. Student careful not to race the engine	1	0	
B. CHECK AFTER STUDENT HAS COMPLETED THE TEST.		YES	NO
5. Ammeter wired correctly.	1	0	
6. Proper firing order at distributor and spark plugs.	1	0	
7. Generator and control unit wired together correctly.	1	0	
8. Ignition switch wired into circuit.	1	0	
9. All tools used correctly and safely.	1	0	
10. All tools and equipment cared for properly.	1	0	

Points earned in Part I _____
 Points earned in Part II _____
 FINAL GRADE (possible 15) _____

A performance test consists of three parts - directions to the student, directions to the checker or observer, and check list as shown here for recording the results of the student performance.

Figure 41. Performance test check list.

phases. To insure this, prepare a complete list of the important points to be observed.

c. Define the Points To Be Observed. Each point must be clearly and accurately defined in terms of student behavior so that there will be no misunderstandings or ambiguities. Everyone concerned in the evaluation must have the same conception of the elements to be noted.

d. Define the Standards of Performance or Conduct. It is not enough simply to look over a situation or to watch students at work. Observers must know exactly what standards are to be expected as students actually do the job. Work habits must be evaluated in terms of field use; personal characteristics must be evaluated in terms of present and future use. These standards should be reviewed by several instructors with varied backgrounds.

e. Observe Accurately and Impartially. Observers must be alert to all that is happening. They must avoid letting opinions or biases influence their judgment; fatigue or emotional upsets must not be allowed to affect their evaluation.

f. Make an Accurate Record Immediately. Observers must not trust memory in making important judgments. A complete record of observations—notes on a check list, or ratings made at the time of or immediately after observations—is necessary to make the judgment valid.

g. Combine Judgments of Several Competent Observers. Repeated observation increases the probability that all important factors will be considered.

h. Use Check Lists or Observation-Check Sheets (fig. 42). A check list for observation of performance, or a rating scale based on the consensus of competent judges, insures that attention will be paid to all important points.

Section III. CHARACTERISTICS OF A GOOD TEST

91. General

There are six important factors which affect the quality of an examination (fig. 43). These factors, while not considered to be separate and distinct, are defined and discussed separately in order to develop a clear understanding of the characteristics of an examination.

92. The Test Must Be Valid

a. The test must measure what it is supposed to measure; this is its most important characteristic. A test designed to measure what students have learned in a specific training program should measure achievement in that training program and nothing else.

b. The instructor should, whenever possible, invite the opinion of other competent persons as to the validity of his tests. The test results obtained should be compared with other measures of student

OBSERVATION CHECK SHEET

STUDENT _____ **SECTION** _____ **DATE** _____

ASSISTANT INSTRUCTOR _____

DIRECTIONS: Check the student Very Good, Satisfactory, or Unsatisfactory.

ELEMENTS CHECKED	VG	SAT	UNSAT
1. Work Habits			
2. Speed			
3. Accuracy			
4. Care of tools and equipment			
5. Observance of safety rules			

TOTAL POINTS EARNED _____

ADDITIONAL COMMENTS: _____

Figure 42. Observation check sheet.

achievement. A variety of tests and other evaluating devices must be used in obtaining a valid measure of achievement.

93. The Test Must Be Reliable

a. A test is said to be *reliable* when it measures accurately and consistently. If the test measures in exactly the same manner each time it is administered, and if the factors that affect the test scores affect them to the same extent every time the test is given, the test is said to be highly reliable. This characteristic of a test is especially important when tests are used to compare the proficiency of several classes.

b. There are several factors which affect the reliability of a test. In general, the reliability of a test can be raised by increasing its length. The more responses required of students, the more reliable is the measurement of their achievement. Test items should be de-

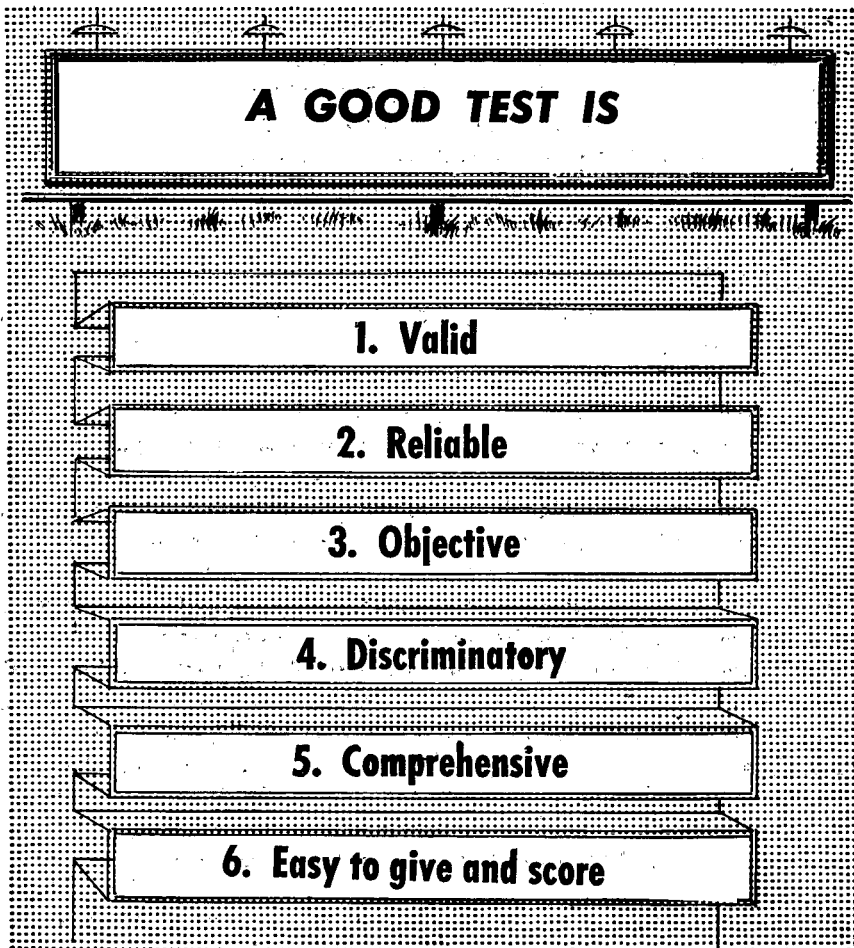


Figure 43. Characteristics of a good test.

signed to make it difficult to guess the correct answer. Also, the way in which a test is administered, and the conditions under which it is given, should be consistent.

c. Other characteristics of the test, such as validity and objectivity, also contribute to its reliability.

94. The Test Must Be Objective

A test is objective when instructor opinion, bias, or individual judgment is not a major factor in scoring it. Objectivity is a relative term. Some tests, such as written examinations which are machine graded, are highly objective; others, such as essay examinations, written exercises, and observation techniques, are less objective. Some-

times observation is the only effective way of determining proficiency; this is true, for example, in some phases of instructor training. In such cases the instructor must strive to make his observations as objective as possible.

95. The Test Should Discriminate

The test should be constructed in such a manner that it will detect or measure small differences in achievement or attainment. This is essential if the test is to be used for ranking students on the basis of individual achievement or for assigning marks. It is not an important consideration if the test is used to measure the level of the entire class or as an instructional quiz where the primary purpose is instruction rather than measurement. As is true with validity, reliability, and objectivity, the discriminating power of a test is increased by concentrating on and improving each individual test item. After the test has been administered, an item analysis can be made which will show the relative difficulty of each item and, of greater importance, the extent to which each discriminates between good and poor students. Often, as with reliability, it is necessary to increase the length of the test to get clear-cut discrimination. Three things will be true of a test that has discrimination:

a. There will be a wide range of scores when the test is administered to the students who have actually achieved amounts that are significantly different.

b. The test will include items at all levels of difficulty. Some items will be relatively difficult and will be answered correctly only by the best students; others will be relatively easy and will be answered correctly by most students.

c. Each item contained in the test will possess discrimination. If *all* students answer an item correctly, it is probably lacking in this respect.

96. The Test Must Be Comprehensive

It must sample liberally all phases of instruction which are covered by the test. It is neither necessary nor practical to test every point that is taught in a course; but a sufficient number of points should be included to provide a valid measure of student achievement in the complete course.

97. The Test Must Be Readily Administered and Scored

It must be so devised that a minimum amount of student time will be consumed in answering each item. The test items must also be constructed so that they can be scored quickly and efficiently.

Section IV. ADMINISTERING TESTS

98. Need for Careful Administration

The results of tests which are improperly administered, or poorly constructed, give instructors an incorrect impression of the degree of student learning. Students must be given every opportunity to do their best on an examination. If a man gets a low score because he misunderstood instructions or was fatigued or emotionally upset, his score is not a true indication of his ability. Likewise, a high score resulting from cheating or from improper help by the instructor will be a false indication of a student's learning.

99. Procedures for Administering Tests

a. Have All Testing Materials Ready. Make sure that enough test blanks, directions, check lists, operation sheets, tools, pencils, scratch paper, or any other material required will be on hand in the classroom before the test is scheduled to start. Testing materials may be distributed to the men either as they enter the room or when they are ready to start.

b. Train the Assistants Needed. Make provision for assistants to handle mechanical aspects of the test, such as passing out materials, while the instructor controls the overall situation. The number of assistants required will depend upon the time required for administering the test and the number of individuals being tested.

- (1) The smoothness of testing procedure will be affected by the efficiency of the assistants. Instructors should make a workable schedule for assistants to follow in distributing and collecting test materials, seating and dismissing the students, checking student work, supervising the conduct of the test, and giving students any help that is proper.
- (2) The instructor should go over the examination carefully with the assistants and indicate to them the points at which they may expect students to have difficulty, the amount and kind of help they may give students, and their exact function and location in the classroom.

c. Provide the Best Possible Testing Conditions. Students cannot do their best in a dark, noisy, or crowded classroom. Eliminate all interest-destroying factors (unless such conditions are part of the test situation, as in the case of a test given to determine proficiency under battle conditions and administered with a noisy and distracting background). Place seats (or working layouts) so that each man will have ample working space and will not be in a position to inadvertently see anyone else's work. Men should be mentally and physically rested before they are given any crucial examination; no one in a state of fatigue, such as might be brought on by a long march or a sleepless night, can do justice to an examination (unless the test is purposely

given at such a time to test knowledge or reactions under adverse conditions).

d. Give Students a Good Start. A test, like any other phase of instruction, should be started in a businesslike manner. The instructor should put the men at their ease and encourage them to do their best.

- (1) The instructor must make certain that the test directions are understood. Write out the instructions for taking the test; read these directions to the men, clearly and unhurriedly. Encourage students to ask questions at the end of the reading in order to clear up any possible misunderstandings.
- (2) Before starting the test, tell the students the kind of help they can secure and the materials that are to be used. Tell them whether there is a time limit; if there is, explain whether it applies only to the overall test or to separate items or sections. If there is to be a bonus for speed or accuracy, explain it.

e. Conduct the Test Carefully. In order for a test to best reflect the ability of each man in the class, the conditions under which it is conducted should affect each man alike.

- (1) Maintain order. Do not allow any student to interrupt another student or create any disturbance.
- (2) If the test is timed, be sure it is timed accurately. Tell the men in advance what time they must cease work, and have a clock plainly visible to all students.

f. Conduct a Critique of Every Test. The teaching value of a test is not fully realized unless this is done. A critique gives the instructor an opportunity to clear up any misunderstandings and to fill any gaps in learning.

CHAPTER 12

THE REVIEW OR CRITIQUE

100. The Review or Critique as a Stage of Instruction

a. The review or critique is the final stage of instruction. It is designed to review the lesson and reemphasize the teaching points. An examination or practical exercise should always be followed by a critique, otherwise students may not have a clear, orderly idea of what was done right and what was done wrong. Good instruction includes intelligent, tactful, and constructive criticism; this criticism can be given most effectively in a group discussion held after an exercise or problem. The review or critique can be used to—

- (1) Sum up and clarify a situation developed in the lesson and point out correct or incorrect methods of execution.
- (2) Provide an overall view of the entire applicatory operation or maneuver.
- (3) Indicate the strong and the weak points of a performance and methods or procedures to be used in correcting errors or mistakes.
- (4) Reemphasize the fundamental points of the lesson.
- (5) Develop among personnel a spirit of unity and an appreciation of the cooperation and teamwork necessary in military activities.

b. The review or critique is so important that it must be considered a stage of instruction in itself. However, it is most valuable when it becomes, in effect, a part of another stage (pars. 43–45). Every period of presentation, application, and examination should include a well-integrated review or critique. The effectiveness of this stage depends upon the flexibility with which the instructor employs it.

101. General Considerations

a. *Human Relations Are Important.* In conducting a critique, the instructor must not be sarcastic; he must make criticisms or comments in a straightforward, impersonal manner. He should criticize individuals in private, praise them in public. Students should leave the critique with a favorable attitude toward the training activity and a desire to improve.

b. *The Review or Critique Should Relate the Instruction to the Subject or Course.* It should emphasize the continuous nature of training by calling attention to what has been done earlier and to

the relation of the instruction just completed to the subject or course of which it is a part.

c. Specific Points Should Be Covered. Procedures used, examples of personal initiative or ingenuity, type of errors and ways for correcting them, and fundamental teaching points should be covered specifically.

d. Fundamentals Should Be Emphasized. The critique which follows an applicatory exercise—particularly a tactical problem—should indicate the various acceptable solutions; it must not give the impression that there is but one correct method of solving the problem. Such a misconception leads to the adoption of stereotyped solutions and to attempts to guess the approved solution, resulting in loss of initiative and independent thought. The critique should emphasize the fundamental principles of tactics in a situation, and should criticize and evaluate the different student solutions on the basis of their completeness, effectiveness, and observance of these fundamental principles.

e. Student Participation Should Be Encouraged. In almost every class there will be individuals who can relate experiences that will emphasize and illustrate key points. Too, a well-controlled class discussion makes the students feel that the critique is a period for learning rather than a time set aside for criticism of their performance.

f. Instruction Should Be Foremost. The review or critique must be conducted as a stage of instruction and part of the lesson. A good review or critique might be said to “nail the lid” on the store of knowledge the student has gained during the period.

102. Steps in the Conduct of the Critique

The critique cannot be planned as thoroughly as other stages of instruction, because the points to be covered are influenced directly by the performance of the students and their reaction to the other stages. Advance planning can include the time and place, and the general outline; during other stages the instructor can take notes to guide his critique; but detailed planning is not practical. However, the instructor can insure complete coverage of the essential elements by following this general procedure:

a. Step 1: Restate the Objective. This will enable the class to start its consideration of the period of instruction on a common ground. This step is necessary because some students may have become concerned only with a particular aspect of the subject and may have forgotten the overall objective.

b. Step 2: Review Procedures Employed. In this step briefly summarize the methods used in the exercise, or the teaching points brought out, to attain the objective. After a practical exercise, description of the activities of various participants and how each contributed to the

common goal will answer the student questions: "What was this all about?" "What did we do?" "What part did I play in the big picture?"

c. *Step 3: Evaluate Performance.* This is the most important part of the critique of a practical exercise. Using notes taken during the exercise, the instructor points out and discusses the strong points of the exercise. Then he brings out the weaker points and makes specific suggestions for improvement. He must be careful not to "talk down" to the group and must not expect a standard of performance beyond the capabilities of the students, considering their state of training. All remarks must be specific; students will not profit from generalities.

d. *Step 4: Control the Group in Discussion.* The instructor should encourage the class to discuss the points he has mentioned and to suggest other points for discussion. All the techniques of conducting a directed discussion apply in this step to insure that criticism is constructive and that discussion is to the point.

e. *Step 5: Summarize.* The critique should be concluded with a brief but comprehensive summation of the points brought out. The instructor can reemphasize teaching points and suggest study and practice to overcome deficiencies. The critique should be business-like; it must not degenerate into a harrangue.

CHAPTER 13

TEST CONSTRUCTION

Section I. WRITTEN ACHIEVEMENT TESTS

103. Procedure for Constructing Tests

a. *Decide on the Specific Points or Objectives To Be Measured.* The best sources of content material are the lesson plans, programs of instruction, and training publications used in the course. From these sources the instructor will select specific teaching points which will provide the basis for his examination. However, for the test to simply measure factual knowledge is not enough; it must be so constructed that it will measure ability to apply and use the information and skills that have been taught. This requires that the course content be translated into terms of student behavior. A work sheet (fig. 44) which lists main teaching points, specific information, and how these are applied is especially helpful in test construction.

WORK SHEET		
MAIN POINTS	SPECIFIC INFORMATION	HOW APPLIED
Handling prisoners of war	a. Rules for handling POWs: Search, Segregate, Silence, Speed, Safeguard. b. How POWs are sent to rear areas. Action at Company, battalion, regimental and division headquarters.	Properly handle POWs so that information can be used in production of intelligence.

Figure 44. Sample work sheet.

b. Develop a Test Outline. This outline (fig. 45) should show, as a minimum, the proportion or number of items to be used in each main topic or area of subject matter. It also may include the tentative plan for the use of various types of test items, and may break down main topics into the less important items. As a general rule, the more important the topic, the greater the number of test items that should be assigned to it. Since the test items are usually grouped by subject matter, the test outline can be used in assembling the final test. The test outline should be regarded as a work sheet subject to modification at any stage in the development of the final test.

c. Write Test Items. The next step is that of writing the test items, sometimes called test questions. Take each topic and subtopic shown in the test outline and write items which cover the important teaching points of each. In preliminary phrasing of the test items, do not spend much time refining the wording; this can wait until later. Make 25 to 50 percent more items than the plan requires; this will permit selection of the best ones. Place each tentative test item on a card; this makes it easy to rearrange or discard items in setting up the final test. Do not be bound by the test outline; if it develops that a topic is better adapted to a type of question different from that shown in the outline, change the outline. Remember that the test will be no better than its individual items.

d. Assemble the Test.

(1) *General form.*

- (a) The first page of each test should give a full identification and description of the test. This page should also give complete instructions for taking the test, listing the texts and other tools, if any, which the students may use, giving the time allowed, and explaining the method of recording answers. These instructions should always be included, regardless of the student's experience with similar tests.
- (b) Group items by types (multiple choice, true-false, etc.). Within each type, arrange the items so that those concerning related material appear together.
- (c) Do not include an item that supplies, or is dependent upon, the answer to another.
- (d) Arrange the items so that it will be unnecessary for the students to refer to more than one page in answering any given item.
- (e) Arrange the items so that the correct responses will form a random pattern.
- (f) Give a point value to each test item in accordance with the amount of achievement it measures.

(2) *Directions.*

- (a) Directions for each type of question must be complete and concise. They should state clearly *what* students are

TEST OUTLINE

SQUAD AND PLATOON PATROLLING

Over-all Objective: To give trainees knowledge, skill, and techniques of squad scouting and patrolling to enable him to act as a member of a patrol.

TOPICAL OBJECTIVES (Subject Matter Areas)	Tentative Number of Test Items	Tentative Types of Items
1. Types of patrols	3	M-C
2. Composition and function of patrols	7	T-F
3. Formations used in patrolling	5	M
4. How to collect information	5	M-C
5. How to report information	7	M-C
6. How to handle PWs	5	T-F
7. How patrol members prepare for a mission	10	T-F
8. Security and movement of patrols	8	T-F
9. How to control the patrol—day, night	5	M-C
10. Duties and actions of patrol members	10	M-C

TIME - 1 hour

Types Symbols

M-C - Multiple Choice

M - Matching

T-F - True False

Note: Each of the topical objectives may be outlined as shown here:

7. How patrol members prepare for mission	Tentative number of test items
a. Security and control measures	2
b. Ground reconnaissance	4
c. Orders	2
d. Inspection	1
e. Equipment	1

Figure 45. Sample test outline.

required to do; *how* the response or answer is to be indicated; and *where* the response is to be placed. If a separate answer sheet is to be used, the directions must so indicate.

- (b) Examples should be included as part of the directions. They should show at least one example of an item answered correctly. They may be used to teach certain points, as well as to direct student attention to the proper method of indicating responses.

(3) *Items*:

- (a) Use as many items as possible that require the student actually to apply learning rather than merely to recall or recognize facts.
- (b) Where answers are to be indicated on the test booklet, leave sufficient space for all responses.
- (c) Include items at all levels of difficulty; this will tend to insure a significant range of test scores.
- (d) Each item should be realistic and practical; it should deal with an important and useful aspect of the lesson. A good procedure to follow is to determine first what information is desired, then write the desired response and construct the test item from the response.
- (e) Underline crucial words to increase the readability of test items.
- (f) Avoid "catch" questions.
- (g) Word questions in such a way that knowledge of the subject is required for the correct answer.
- (h) Avoid using the words *always* and *never* in test items.

(4) *Solution sheets*. The use of a solution or answer sheet (fig. 46) eliminates the necessity for turning pages when marking the test, decreases the probability of errors in scoring, and makes possible the use of a template for rapid scoring. Also, its use allows the student to retain the test booklet during the critique which should follow the examination; if this is to be done, the student should indicate his answers on the answer sheet and also mark his test booklet. Use of answer sheets for objective-type questions is efficient, but such sheets are not practical for essay-type questions requiring long answers. Instructor-made answer sheets should be similar to those used for machine grading, especially if the students are likely to use machine-graded answer sheets in other tests.

e. *Review the Test*.

- (1) Ideally, an examination should be tried out on a cross section of the students who are to take it; however, this is seldom feasible. The next best plan is to give the test to a group of instructors and assistant instructors who are not directly concerned with the instruction covered by the test. This group should take the test just as the students do. A comparison of the time required by an instructor group to complete an examination with the time required by the students will help in determining time requirements for future examinations. Such tryouts also help to locate errors in questions or answers, catch questions, and ambiguous wording.

ANSWER SHEET

NAME _____ RANK _____ DATE _____
 COURSE _____ TEST NR _____ SCORE _____

For Multiple Choice Test Items

	1	2	3	4	5
1.	//	//	//	//	//
2.	//	//	//	//	//
3.	//	//	//	//	//
4.	//	//	//	//	//
5.	//	//	//	//	//

For True-False Test Items

	T	F
31.	//	//
32.	//	//
33.	//	//
34.	//	//
35.	//	//

For Other Controlled Response Test Items

	1	2	3	4	5	6	7	8	9	10
51.	//	//	//	//	//	//	//	//	//	//
52.	//	//	//	//	//	//	//	//	//	//
53.	//	//	//	//	//	//	//	//	//	//

For Short Answer—Appropriate Blanks

60. _____
 61. _____
 62. _____

Figure 46. Outline, instructor-made answer sheet.

- (2) A review board of instructors, or other personnel competent to pass judgment, should evaluate every test. Members of the review board should actually take the test, check the time required, and compare results; then the instructor gives out approved solutions and critiques the test.

f. Prepare the Materials for the Test. These include copies of the test, solution sheets, scoring keys, and other such materials. The work in this step is mechanical and may be handled by clerk-typists, but it must be closely supervised by the instructor. The effectiveness of the

test can be seriously affected by such things as lack of sufficient copies or a missing page in the examination booklet.

g. Revise the Test. If the test is to be administered to other classes, student responses should be carefully studied and every effort made to revise and improve the examination. One effective way to accomplish this is to place each item on an individual card which is classified according to course objectives, and to show on the card an analysis of past student performance on that item. Revisions of the item can be made on the card and performance analyses can be accumulated from class to class.

104. Multiple-Choice Test Items

A multiple-choice item consists of two parts: a *stem*, which asks a question, states a problem, or takes the form of an incomplete statement; and several alternatives, which are possible answers to the question or problem posed, or grammatically correct completions of the *stem*. One *alternative* must be either the clearly best answer or the only correct answer. The other alternatives should be fairly plausible.

a. Examples.


DIRECTIONS: Each of the incomplete statements or questions listed below is followed by several possible answers. From these, select the *best* answer for each test item. Indicate your selection by marking the appropriate space on your answer sheet as shown in the example below. Points for each test item: 2.

EXAMPLES


X. In which general direction should a soldier go to follow a magnetic azimuth of 220° ?

1. Northwest.
2. West.
3. South.
4. Southwest.

Note. The answer should be shown on the answer sheet in this manner.

X. 1 2 3 4
 // // // 

1. The place in the forward area where units are brought together, in preparation for attack, for resupply, maintenance, or reorganization is called the
 1. bivouac area.
 2. assembly area.
 3. attack position.
 4. line of departure.

Answer: 1. 1 2 3 4
 //  // //

b. Characteristics of the Multiple-Choice Test Item.

- (1) The multiple-choice item can be designed to measure the student's ability to form judgments and make application of things learned.
- (2) It can be used to measure what a student can recognize, which represents a much wider field than what a student can recall.
- (3) It can effectively present problems involving reasoning and judgment based on knowledge applied to situations, rather than memory for facts.
- (4) It can be varied to suit many kinds of subject matter and to measure various types of achievement, such as command of fundamentals, application of principles, and formation of judgments.
- (5) Its scoring is objective.

c. Points To Be Observed in Constructing the Multiple-Choice Test Item.

- (1) Include at least four, but not more than five, alternatives or possible responses.
- (2) Include no responses that are obviously wrong. Word all choices in such a manner that the student must know the subject matter in order to select the correct answer.
- (3) When the stem is an incomplete statement, the choices should complete the statement by being placed at the end rather than filling a blank in the statement. This makes for better continuity when the student reads the item.
- (4) Avoid clues to the correct answer. Examples of such clues are grammatical construction, including a common element or word in both the stem and the correct answer, making the correct answer longer and more complete than the other choices, making incorrect answers conspicuously illogical.
- (5) When a negative item is used, emphasize the negative word or phrase.
- (6) Answers which are numerically or logically related in a sequence should be placed in proper order.
- (7) The item should contain only material which is relevant to its solution.
- (8) When words or phrases are common to all alternatives, they should be placed in the stem.
- (9) Do not weight items differently within the same section of the examination. If more weight is indicated for a certain phase, include more test items on that phase.
- (10) When several stems have the same alternatives, consider presenting the subject matter in a matching type item (par. 106).

105. True-False (Alternative Response) Test Items

The unmodified type of true-false test item consists of a simple statement that may be either true or false, the students being required to determine which.

a. Examples.

DIRECTIONS: Listed below are a number of statements; some are true and some are false. If any part of a statement is false, the entire statement is false. Make your decision with regard to each statement, and indicate your solution by marking the appropriate space on the answer sheet. The first item is answered as an example. Points for each test item: 1.

X. The principal advantage in the use of radio as a means of communication is secrecy.

Note. The answer would be shown on the answer sheet in this manner.

X. T F
 // //

1. FM radios cannot net with AM radios.

Answer: 1. T F
 // //

2. An urgent radio message may be transmitted in clear text at the discretion of the radio operator.

Answer: 2. T F
 // //

b. Characteristics of the True-False Test Item.

- (1) The true-false item can be used effectively as an instructional test item to promote interest and to introduce points for discussion.
- (2) It can effectively sample wide ranges of subject matter.
- (3) It is easily and objectively scored.
- (4) It can be made a factual question or a thought question that requires reasoning.
- (5) It is difficult to construct items that are completely true or false without making the correct response obvious.

c. Points To Be Observed in Constructing the True-False Test Item.

- (1) Make approximately one half of the items true and one half false.
- (2) Do not make the true statements consistently longer than the false statements, or vice versa.
- (3) Limit each statement to one main idea or point.
- (4) Avoid negatives and involved statements.
- (5) Make application of things learned in as many of the items as possible.

- (6) Avoid using such words as *all*, *none*, *never*, and *always*.
- (7) Where possible, make the crucial element come near the end of the statement.

106. Matching Test Items

The matching type of test item includes two lists or columns of related topics such as words, phrases, clauses, or symbols. Students are required to match each item in one list with the item in the other list to which it is most closely related.

a. Examples.

DIRECTIONS: In the two columns below are listed related words or phrases pertaining to the location of Army service schools. Indicate, by marking the appropriate space on the answer sheet, the number of the word or phrase in column II which is most closely related in meaning to the item in column I. Each number in column II may be used only once. The first item is answered as an example. Points for each test item: 1.

Column I Schools

Column II Locations

X. The Infantry School

Note. The answer would be shown on the answer sheet in this manner.

x.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	//	//	//	//	//	//	■	//	//	//	//	//	//	//	//

1. The Artillery School
2. The Army General School
3. The Signal Corps School
4. Antiaircraft Artillery and Guided Missiles Branch, The Artillery School
5. The Armed Forces Information School
6. The Engineer School
7. The Armored School
8. The Quartermaster School

1. Fort Sill
2. Fort Belvoir
3. Fort Knox
4. Fort Lee
5. Fort Bliss
6. St. Louis
7. Fort Benning (do not use)
8. Fort Monmouth
9. Fort Eustis
10. Carlisle Barracks
11. Fort Riley
12. Camp Gordon
13. Fort Hood
14. Fort Leavenworth
15. Fort Monroe

b. Characteristics of the Matching Type Test Item.

- (1) This type of test item is especially valuable for testing student ability to recognize relationships and make associations.
- (2) The matching exercise may require students to match—
 - (a) Terms or words with their definitions.

- (b) Characteristics with the mechanical units to which they apply.
 - (c) Short questions with their answers.
 - (d) Symbols with their proper names.
 - (e) Descriptive phrases with other phrases.
 - (f) Causes with effects.
 - (g) Principles with situations in which the principles apply.
 - (h) Parts or mechanical units with their proper names, or parts with the units to which they belong.
- (3) A large number of responses can be obtained in a small space and with one set of directions.
 - (4) It can be made totally objective.
 - (5) The student can complete it quickly, and it is easy to score.
 - (6) It tends to be highly reliable and discriminating.
 - (7) Since the phrases or clauses must necessarily be short, the matching exercise provides a poor measure of complete understandings and interpretations.
 - (8) It is generally inferior to the multiple-choice item in measuring judgments and applications of things taught.
 - (9) It is likely to contain irrelevant clues to the correct response; the instructor may have difficulty in eliminating such clues.
- c. *Points To Be Observed in Constructing Matching Items.*
- (1) Require students to make at least 5 and not more than 12 responses in completing each matching exercise.
 - (2) Include at least three extra items from which responses must be chosen. This tends to reduce the possibility of guessing or answering by a process of elimination.
 - (3) Include only homogeneous or related materials in any one exercise.
 - (4) Place the column containing the longer phrases or clauses on the left-hand side of the page. Require students to record their responses at the left of this column. This makes the process of selection easier.
 - (5) In matching the parts of the item, each part should be used only once.
 - (6) Include at least three plausible responses from which each correct response must be selected. If, in order to do this, it is necessary to include three times as many items in one column as in the other, use some other type of test item.
 - (7) In setting up the test make sure that all of a given matching exercise appears on one page.
 - (8) List nothing in either column that is not a part of the subject in question.
 - (9) Make the directions specific. State in the directions the area of instruction to which the things listed apply.

107. Classification Test Items

a. General. Classification test items require the student to classify several terms, phrases, or clauses in terms of certain definite categories. This item is another form of the matching test item and has essentially the same characteristics; the same points should be observed in constructing both types. Classification type items can and should be substituted for matching items when several things listed in the exercise bear a definite relationship to other things listed. Many variations of this test can be used effectively.

b. Example.


DIRECTIONS: In the two columns below are listed related words or phrases pertaining to the Browning Machine Gun, Caliber .50, HB, M2. Indicate, by marking the appropriate space on your answer sheet, the number of the word or phrase in column II which is most closely related in meaning to the item in column I. Each number in column II may be used several times. The first item is answered as an example. Points for each test item: 1.

Column I

Column II

X. Bottom plate

Note. The answer would be shown on the answer sheet in this manner.

x. 1 2 3 4 5 6
 // // // // // 

- | | |
|---------------------------|---------------------------|
| 1. Extractor cam | 1. Bolt group |
| 2. Ejector | 2. Cover group |
| 3. Trigger bar | 3. Barrel group |
| 4. Buffer disk | 4. Backplate group |
| 5. Belt feed pawl arm | 5. Barrel extension group |
| 6. Sear spring | 6. Receiver group |
| 7. Breech bearing | |
| 8. Depressors | |
| 9. Breech lock | |
| 10. Piston | |
| 11. Shank | |
| 12. Barrel locking spring | |

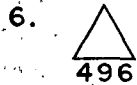
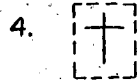
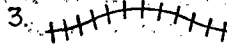
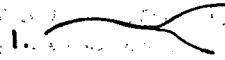
108. Identification Test Items

The identification type test item is used to measure student ability to recall and indicate the proper names of such things as tools, mechanical units, symbols, instruments, or specific parts. This type also may be used to measure the ability of students to analyze special difficulties or identify the errors in a drawing.

a. Example.

DIRECTIONS: In the correspondingly numbered blank to the left of the symbols shown below, write the name of the object represented by each symbol.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____



b. Characteristics of Identification Test Items.

- (1) The identification item can be substituted for the matching when it is desired to have students recall outright the proper names.
- (2) It can be made to measure the application of certain knowledges, as in detecting the errors in a drawing.

c. Points To Be Observed in Constructing the Identification Test Item.

- (1) Make all sketches clear and of sufficient size.
- (2) Make sure that lines indicating parts to be named terminate at proper places.
- (3) Wherever practical, display the actual parts of units instead of using sketches.
- (4) If the actual parts or units are to be displayed, place the identification items at either the beginning or the end of the test.
- (5) Have a good sample of the item to be identified.
- (6) Make sure that only one definite answer is possible.

109. Listing or Enumeration Test Items

The listing or enumeration test item requires students to supply a list of terms, rules, or factors that have been taught and emphasized in a given course. Students may or may not be required to list the items in a particular order.

a. Examples.

DIRECTIONS: Read each item carefully. Follow in every detail the directions given with each.

In the blank spaces provided, list four aids which are helpful in identifying objects or features on an aerial photograph.

- (1) _____ Color.
- (2) _____ Shape.
- (3) _____ Shadow.
- (4) _____ Size.

List the four strokes of the Otto cycle in the order in which they occur.

- | | | | |
|-----|-------|--------------|-------|
| (1) | _____ | Intake. | _____ |
| (2) | _____ | Compression. | _____ |
| (3) | _____ | Power. | _____ |
| (4) | _____ | Exhaust. | _____ |

b. Characteristics of the Listing Test Item.

- (1) The listing or enumeration test item can be used to measure degree of recall of highly specific points of information.
- (2) It allows a degree of freedom of expression.
- (3) It minimizes the possibility of guessing the correct response.
- (4) Its use tends to place too much emphasis upon memorizing facts and details.
- (5) It does not readily measure the individual's ability to use or interpret information.
- (6) Its scoring tends to become somewhat subjective.

c. Points To Be Observed in Constructing Listing or Enumeration Test Items.

- (1) Design the item so that it will call for specific facts.
- (2) Each thing to be listed should involve only a few words. Students should not be required to list long, involved statements. Scoring these becomes subjective.
- (3) Rarely should one question call for more than six or eight things to be listed.
- (4) Do not use this item if students can choose from a great variety of possible answers to supply responses. That is, do not call for 5 items out of a list of 15 taught in the course; to do so would place all students who listed 5 items in the same category and indicate that each had achieved equally with respect to the 15 points in question. Such a listing item would be very low in discriminating power. Make every effort to design items which will detect small differences in achievement.
- (5) If students are required to list things in a given order, determine, before the test is given, how the responses are to be scored. The nature of the subject matter should be considered in establishing a method of scoring.

110. Completion Test Items

The simple completion item requires students to recall and supply one or more key words that have been omitted from statements. The words, when placed in the appropriate blanks, make the statement complete, meaningful, and true. The statements may be iso-

lated and more or less unrelated, or they may be combined to form short paragraphs that carry a continuous line of thought.

a. Examples.

DIRECTIONS: Each of the numbered blank spaces in the following incomplete statements indicates the place of an omitted word. Complete the meaning of each statement by writing the correct words (one word for each blank) in the corresponding numbered blanks at the left. The first item is completed as an example.

- (x) air The motorcycle engine is (x) _____ cooled.
(1) _____ When the motorcycle service lights are turned on the (1) _____ furnishes additional current by
(2) _____ cutting in a second (2) _____. The output
(3) _____ of the generator can be increased by moving the (3) _____.

DIRECTIONS: In the blank space that occurs in each of the following incomplete statements write the word (one word for each blank) that will make the statement complete and true. The first blank is completed as an example.

- (x) The breaker points open and close the primary circuit.
(1) The ammeter is connected in _____.
(2) The cam angle is the number of degrees through which the cam revolves while the points are _____.

b. Characteristics of the Completion Test Item.

- (1) The simple completion item can be used to test student ability to recall specific facts; it demands accurate information.
- (2) It can be used effectively to sample a wide range of subject matter.
- (3) The paragraph form can be used to test continuous thought within a specific area of subject matter.
- (4) It has high discriminating value.
- (5) It is difficult to make entirely objective.
- (6) Used indiscriminately, it tends to measure verbal facility and memorizing of facts rather than application.

c. Points To Be Observed in Constructing Simple Completion Type Test Items.

- (1) Omit no more than three words in a given sentence. Leaving too many blanks makes it necessary for students to memorize entire statements. A short statement with only one word omitted is preferable.
- (2) Place the blanks near the end or at least past the center of the sentence. This makes for continuity when reading the statement.

- (3) Design each statement in such a manner that it will remain incomplete until the correct response is inserted.
- (4) Omit only key words, not insignificant or trivial ones.
- (5) Do not copy statements directly from textbooks to make completion items.
- (6) It is usually poor practice to omit verbs.
- (7) If possible, construct the item so that there can be only one correct response.
- (8) If synonyms are to be accepted, include them in the key.

111. Essay Test Items

In the essay test item, students are required to make a comparison, write a description, or explain certain points.

a. *Characteristics of the Essay Test Item.*

- (1) The essay item can be used effectively to measure student ability to organize and express thoughts.
- (2) It can be used to measure complete understanding of certain points.
- (3) Its greatest disadvantage lies in the fact that its scoring may become subject to the instructor's interest, range of knowledge, and other similar factors.
- (4) Response to the essay item requires much student time.
- (5) Scoring the item requires much more time than is required for other types.
- (6) Only a relatively few points can be covered by essay items. Poor sampling of the subject matter may result.
- (7) It provides students an opportunity to bluff.
- (8) Men who know subject matter well, but are not skilled in writing, may be penalized on an essay examination.

b. *Construction of Essay Test Items.*

- (1) Call for specific answers. Word the item in such a manner that it provides the student with an outline that he can follow in formulating his response.
- (2) State the item in a simple, direct manner.
- (3) Allow one point for each significant idea or fact expected in the response.
- (4) Design the essay item to require students to *compare, explain why, give a reason, describe, or explain how*, rather than to *name, list, or enumerate*.

c. *Scoring Essay Test Items.* Essay test items are very hard to score. The following points will help in scoring.

- (1) Write out the answer expected for each item. Include every point that is to be accepted.
- (2) Score one essay item on all the test papers before proceeding to the next.

- (3) Give value to an item by allowing one unit of credit for each point covered in the answer.
- (4) Do not deduct points for grammatical errors, handwriting, or other deficiencies unless these are desired outcomes of the instruction.
- (5) Use code numbers instead of names on the students' papers. This is particularly important in cases where instructors are personally acquainted with the students.

112. Situation Type Tests

Test questions are often very effectively presented through the use of situations and requirements. This is not, strictly speaking, a form of test item, but rather a manner of presenting various types of questions. The situation and requirements may be followed by essay, listing, or any other type of test item. The test, in most cases, is hand-graded, and it is not necessary to group items according to the types used. The instructor uses the type of test item which will best measure the material covered by the requirements.

a. Characteristics of the Situation Type Test.

- (1) The situation type test can be used effectively to measure the student's ability to make application of things learned. It is one of the most valuable tests for this purpose.
- (2) It can be varied or adapted to various kinds of subject matter.
- (3) It is sometimes difficult to make objective.
- (4) Although highly valid, it must be carefully constructed and scored.

b. Points To Be Observed in Constructing the Situation Item.

- (1) Make the item as specific as possible.
- (2) Construct the item in such a manner that it requires the student to solve a problem.
- (3) Methods of indicating the responses will vary. Include specific directions for recording the response in the directions for each requirement. Do not attempt to write one set of directions to fit all situations.
- (4) State the problem or describe the situation clearly and concisely. Use sketches wherever possible.
- (5) Avoid basing the solution of one problem on the response to another.

Section II. INTERPRETING TEST RESULTS

113. Introduction

a. Evaluation of Test Results. The purpose of testing can be fulfilled only by proper evaluation of student performance in good test situations.

b. Three Steps in Interpreting Test Results.

- (1) Analyze student responses to the separate items. This analysis is made in order that—
 - (a) Weaknesses or gaps in student mastery of instructional material can be determined and remedied by further instruction.
 - (b) Instructional inefficiency can be located.
 - (c) Student learning can be expedited by a detailed discussion of the examination.
- (2) Interpret total test scores. The overall results of a test will—
 - (a) Separate qualified students from those not qualified to perform the task or job.
 - (b) Indicate the relative degree of learning each student has attained.
- (3) Assign interpretative grades. Grades indicate the instructor's final evaluation of students' performance in a subject or course. While grades may be assigned to scores from a single test or observation, most grades will be based on the combined results of several tests and a number of observations.

c. Test Results Should Be Interpreted With Caution. Do not assign too much importance to a single test grade, no matter how well constructed and administered the test may have been. The reason for this caution is that all test responses, observations, and scores are subject to various small factors that are usually called random errors. Because of these random errors, a student who makes a certain score on one test may make a considerably different score on a comparable test given under slightly different conditions, at a different time, or under the supervision of a different instructor. The lower score may have been caused by conditions occurring—

- (1) In the test, such as ambiguities, poor selection of items, poor printing, distractions in the test environment.
- (2) In the student, such as poor physical condition, emotional upsets, reading too fast.
- (3) In the instructional situation, such as variation in scoring standards or absences for unavoidable causes.

114. Evaluating of Responses to Test Items

a. Procedure.

- (1) Prepare a summary of the errors made on each item. If you have a card file of test items (par. 103g) record the number of errors for each item on its card.
- (2) Group the items missed in terms of—
 - (a) *Teaching objectives.* If nearly all items relating to one or more teaching objectives were missed, it usually indicates inadequate instruction.

- (b) *Similar types of items.* If a large number of errors are made on an oral test covering the same material, either the students have not learned to do the job or the test was set up improperly, perhaps with faulty directions or ambiguous items. Directions and items should be carefully studied and revised, if necessary, before the test is used again.
- (3) *Analyze the type of error made.* Clues to student misunderstanding or to weakness of instruction can often be found in student responses or behavior. For example, the way students respond may indicate that the terms used were misunderstood, or that directions for performing an operation were not clear. An analysis of this type will be of value in discussing the examination with the students as well as in improving future instruction.
- (4) *Analyze the errors made by individual students.* The responses of all students should be studied, but the responses of low-scoring students will require more careful attention than will those of the more capable. A few errors may be due to a student's absence from one or more class meetings, while other errors are traceable to slowness in mastering the subject matter. The instructor should attempt to locate the source of a student's errors and initiate the necessary corrective measures, such as special classes, individual help, or reviews.

b. Cautions.

- (1) Despite his best efforts, the instructor's terminology and phraseology will sometimes be misunderstood, or will be interpreted in different ways. This will result in test errors that are not necessarily evidence of faulty instruction or incorrect learning.
- (2) A student's physical or emotional condition will influence his behavior in a test situation. A student who is sick or worried will frequently make errors on subject matter that he has mastered.
- (3) Failure of the instructor to put the men at ease, to encourage them to do their best, or to provide a good testing environment will result in errors on the test.

115. Interpretation of Total Test Scores

Scores made on a test must be interpreted in relation to the achievement of other students in the same test situation. The instructor first determines the critical score, or passing mark, and then converts the scores to common numerical values.

a. Frequency Distribution Tables. The first step in interpretation of test scores and assignment of grades is the construction of a frequency distribution table. In figure 47 the steps involved in the

FREQUENCY DISTRIBUTION TABLE

Grouped Scores	Tally of scores in each group	Number of scores in each group
75—79	I	1
70—74	II	2
65—69	II	2
60—64	III II	7
55—59	III	5
50—54	III III	9
45—49	III II	7
40—44	III	5
35—39	III I	6
30—34	I	1
25—29	III	3
20—24	II	2

Steps involved in setting up a frequency distribution table:

1. Determine the range of scores. Find the difference between the highest and lowest scores made on the test. This difference plus one is called the **RANGE** of the distribution. In the case of the scores above, the range was $(75 - 22) + 1 = 54$.
2. Determine the size of the **INTERVAL**. Use the range to determine whether the scores should be grouped by units of 1, 3, 5, 7, etc. No special rule relative to the number of intervals to be used can be stated, but it is usually desirable to group scores into approximately 12 to 25 intervals. In the example above, the interval of 5 seemed most desirable.
3. Tally the test scores and complete table.

Figure 47. Frequency distribution table.

tabulation of scores are given below the table. This table gives the instructor an overall picture of performance on the test. Test scores tallied here are called raw scores—scores based entirely on the number of test items answered correctly. Raw scores have little meaning in themselves; they must be put in tabular form and the table interpreted.

b. Setting the Critical Score.

- (1) From the frequency distribution table, the instructor can set the critical score by inspection based upon judgment and unit policy. This policy may be influenced by the normal distribution curve (par. 116), but it should not be too

rigidly established or blindly administered. In handling achievement test scores, there is no substitute for the best judgment of competent instructors and administrators.

- (2) A common error in establishing the critical score on a test, and in giving grades, is to assume that correctly answering 70 percent of the items should always give a passing grade. The percentage score actually means very little, because achievement tests often vary in difficulty. However, percentage scores may have value in testing situations where standards have been carefully set or in cases where scores have been adjusted for difficulty.
- (3) In setting a critical score, the instructor will frequently consider other factors than the test scores.
 - (a) *Instructor's opinion.* If the instructor considers that student performance is satisfactory, the men should pass. His judgment should be the principal factor in setting the passing mark.
 - (b) *Student performance.* If the performance records of students who have taken the test are available, the instructor can use them in arriving at a critical score.
 - (c) *Average scores of several classes.* In evaluating the performance of one class against the records of previous classes, be sure to take into account any known differences in the instructional situation.
 - (d) *Use of the normal distribution curve.* This procedure is explained in paragraph 116.

c. *Converting the Scores to Common Numerical Values.* This is essential if the test results are to be used in estimating the relative achievement of each man, in comparing his achievement on one test with his achievement on another, in making a fair evaluation of his ability, or in computing a final grade for a phase of subject matter. The scores may be converted into common numerical values in several ways.

- (1) Adjectival ratings or letter grades may be assigned on the basis of established standards. Thus, if a student's performance reaches the highest established standard, he is given a "Superior" or an "A." The distribution of these grades may or may not follow the normal distribution curve.
- (2) Percentage scores may be used. These scores have little meaning unless tests are uniformly difficult. For example, 90 percent might be a high score on one test, a low score on another.
- (3) Test scores can be converted into numerical grades by using a translation graph. This method can be used by personnel who are not experienced in the computations necessary to

employ statistical techniques in establishing scores. For example, an 80-point examination produced the test scores shown in figure 47. In order to translate these scores into class grades the instructor used the graph shown in figure 48. The practice in the training unit was to use 70 as a passing grade. By inspection of the frequency distribution table and by comparison with accepted standards of performance, the instructor set 33 as the passing score. He then plotted the point 70-33 on the graph and drew his conversion line from that point to the possible score, which he considered as a grade of 100. Test scores were then converted to class grades which had meaning to the students.

- (4) Rank: rank is often used to indicate performance in a course.
- (5) Percentiles and standard scores: these are the most useful numerical values, but their computation should not be undertaken unless qualified personnel are available to compute and interpret the values. They are not discussed here.

d. Evaluation of Personal Characteristics. Because personal characteristics cannot be measured as precisely as skills and knowledge,

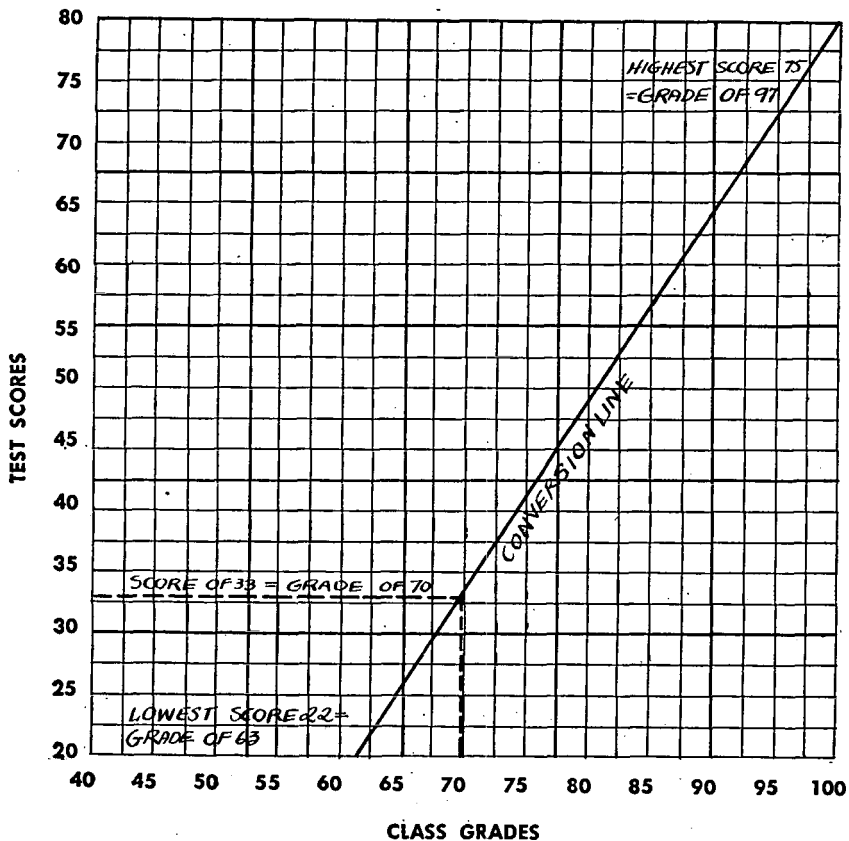


Figure 48. Translation graph.

their interpretation is more complex and subjective. But, through the use of carefully prepared check lists, rating forms, and well-planned interviews and observations, personal characteristics can be evaluated with satisfactory accuracy. Except for the fact that results must be interpreted with more caution, the procedures used in converting scores to common numerical values are the same as described in *c* above.

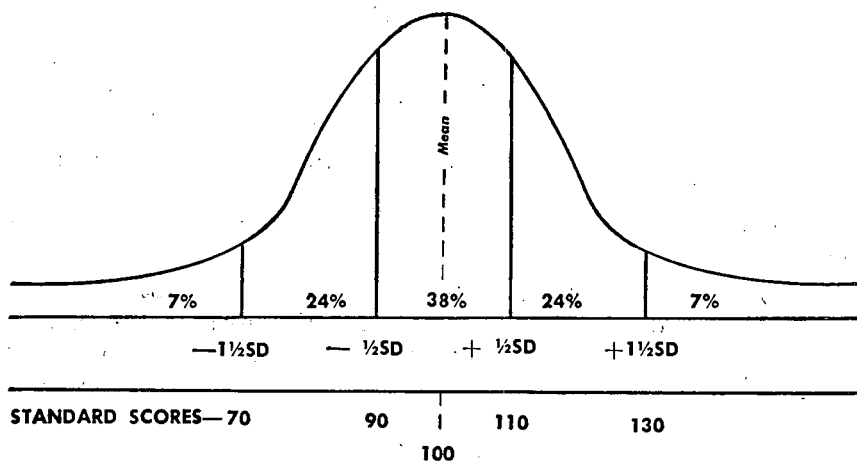
e. Cautions To Be Observed.

- (1) A test score in itself is meaningless. A zero score does not mean that a student knows nothing about the subject, nor does a perfect score mean that the student knows everything. A zero means that the test was far too difficult to measure what the student had learned, while the perfect score may mean that the test was too easy. Likewise, two scores, one of 40 and another of 80, cannot be interpreted by themselves as meaning that one student has achieved twice as much as another.
- (2) Scores for different tests are not directly comparable unless the tests serve the same purpose, have the same number of items, are equally difficult, and are equally valid and reliable. Since these conditions rarely hold, it is unsafe to compare raw scores from different tests.

116. Use of the Normal Distribution Curve To Establish Grades

a. The statistical measure used in computing grades by means of the distribution of scores is the standard deviation (fig. 49). The standard deviation is a measure of variability that indicates how closely the scores tend to cluster about the average score for the class; in effect it is a measure of distance. In a normal distribution, if one standard deviation is measured from the mean, either above or below, approximately 33 percent of the scores will be included in the distance measured. The length of a standard deviation will vary from distribution to distribution, because it must be derived statistically from the spread of the scores. However, in every instance, the percentage of scores included will remain about constant. One and one-half standard deviations on either side of the mean will include approximately 43 percent of the scores; therefore, the total of one and one-half standard deviations on *each* side of the mean will include approximately 86 percent of all scores. Consequently, it is possible to establish constants that will be applicable to every testing situation.

b. The application of these constants to specific situations is an arbitrary matter. It is based on the assumption that, in a normal distribution of scores, those that are below one and one-half standard deviations from the mean represent results that are below normal, and those above one and one-half standard deviations from the mean



SD = Standard Deviations, a statistical measure of variability

STANDARD SCORES: Scores computed using the standard deviation.

In Army practice $1SD = 20$. These scores are commonly used in service schools and on standardized tests.

Figure 49. Normal distribution curve.

are above normal. In other words, 86 percent of all people are about normal, 7 percent are below normal, and 7 percent are superior.

c. The simplest method of applying this principle, and one which can be put into effect without any statistical computations whatever, is to classify all scores into three groups: unsatisfactory, satisfactory, and superior. The unsatisfactory group will include all students whose scores are more than one and one-half standard deviations below the mean. Since the scores below this point will always equal about 7 percent of the group, all the instructor must do is arrange the scores in descending order, determine the number of students in the unsatisfactory group by taking 7 percent of the total number of students, and mark the papers accordingly. The satisfactory group will then include all those whose scores fall within one and one-half standard deviations above and below the mean. This includes about 86 percent of the class. If a distribution of scores into a five-grade classification is desired, the instructor might proceed as follows: The lowest 7 percent will be marked F, the next 24 percent will receive a grade of D, the next 38 percent will be C, the next 24 percent will be marked B, and the top 7 percent will receive an A.

d. It must be reemphasized that the above method will prove satisfactory only when there is a normal distribution. In most instances it will be necessary to make modifications, otherwise the lower students may suffer. This is especially true in advanced classes, where the better background of certain students may put them far ahead of the class average. Such a group is not normal.

CHAPTER 14

HOW TO SET UP A METHODS-OF-INSTRUCTION COURSE

117. General

Many Army schools include in their programs of instruction not only military subjects but also training in Army instructional methods and techniques. To assist officers in charge of such schools in setting up an effective instructor training course, this chapter presents: first, several basic considerations that should govern the organization and administration of a course in instructional methods; second, subject outlines and training schedules for two different types of instructional methods courses; and third, suggestions for improving instruction through in-service training. Some suggested lesson outlines for use in such training are given in appendix V.

118. Basic Considerations in Setting Up the Course

a. Make the Course Fit the Need. The course must satisfy the requirements of the local situation; the instruction presented must be adapted to the needs of the personnel assigned to take the course. Although basic principles remain the same in all instructional methods, the emphasis on specific techniques will vary, depending on what subjects will be taught by the instructors to be trained.

b. Plan Practical Work First. The effectiveness of an instructor training course will depend upon the practical experience it provides. Therefore, the students must be given an opportunity to gain experience in planning, presenting, and evaluating instruction. The entire course should emphasize practical work, especially if most of the students are inexperienced as instructors. This practical work should closely parallel the type of teaching which the students will later do in their units.

c. Select Subject Matter Which Will Help the Students in Their Practice Teaching. For example, the first period of practical work may be a short talk in which the students uses the lecture method. The conference prior to this talk should cover only subject matter which will assist him to perform this exercise. The instruction thus becomes more meaningful to the student because he realizes that he will apply the principles in his lesson. Make the practical work serve as the means for emphasizing the importance of the subject matter.

d. Present the Subject from the Standpoint of How Soldiers Will Use It. Instruction should be specific and pitched for the students and their particular needs. Instructors must use numerous examples and illustrations in their presentations to make material meaningful

to students, and must take every opportunity to present the subject from the standpoint of the student's use of the material on his job.

e. Make Wide Use of Demonstration Lessons. The best way to set high standards of instruction is to show the students, through demonstration lessons, what is expected of them. If students are to learn how to present an effective lesson in map reading, show them a demonstration lesson in that subject. It is easier for them to imitate demonstrated techniques than to apply ideas presented by oral methods.

119. A Suggested Methods-of-Instruction Course

a. General. Several factors—such as time available, number of students and instructors, available facilities and equipment—will affect the setup of the course. The course described in this paragraph is designed to handle 60 students; these students would be together for the conference work and divided into four sections for their student lessons. If more than 60 students attend the course, additional instructors must be provided (to handle the practical work) on the basis of one instructor to each added group of 15 students, or fraction thereof. This course is set up to be presented in 4-hour blocks, one block per day; this allows students to plan their lessons or attend to troop duties during the other 4 hours of each day.

b. Recommended Subject Outline and Training Schedule. The following schedule is offered as a guide; it can be altered to fit the training situation.

Period	Subject	Hours, type	Scope of instruction	References
1	Orientation and fundamentals of military instruction.	1 C-----	The purpose of the instructor training. The student and his characteristics. The characteristics of a good instructor. How the instructor can improve. The five stages of instruction. The conduct of the course. Assignment of practical work.	FM 21-5, ch. 4; FM 21-6, chs. 1 and 3.
2	Principles of learning.	1 C-----	The need for an understanding of basic principles of learning. The nature of learning in terms of how we learn. Six fundamental principles of learning and their application in military instruction.	FM 21-5, pars. 60-62, 64, 65; FM 21-6, ch. 2.

See notes at end of table.

Period	Subject	Hours, type	Scope of instruction	References
3	Planning the lesson.	2 C, PE	Steps taken by the instructor in the preparation stage. Estimate of the instructional situation. Selection and organization of material. Writing the lesson plan. Rehearsal of lesson and final check of physical setup. Practical exercise in drawing up a lesson plan.	FM 21-5, ch. 5; FM 21-6, chap. 4.
4	Presenting oral instruction.	1 C	The organization of oral instruction into introduction, explanation, and summary. The purposes and elements of an introduction. Achieving a meaningful explanation through organization and transitions. How to keep the explanation interesting. Uses of the summary. Contents of the final summary, or review.	FM 21-5, pars. 89-99, 110, 182-190; FM 21-6, chs. 5 and 12.
5	Student short talk.	3 PE (60 students).	Each student will plan and present a short talk (3 to 5 minutes) in which he applies the techniques of giving an effective introduction. The talk will be critiqued by another student.	FM 21-5; FM 21-6.
			<i>Note.</i> Process six students per hour in each section.	
6	Speech Techniques.	1 C	Factors affecting oral instruction. The importance of getting contact and keeping it. How the instructor can control nervousness. Posture, movements, and gestures in speech. Avoiding mannerisms. Being heard and understood. How to develop effective speech habits.	FM 21-5, pars. 167-181; FM 21-6, ch. 6.

See notes at end of table.

Period	Subject	Hours, type	Scope of instruction	References
7	Training aids.	2 C, D---	Why use training aids. The characteristics of a good aid. Specific points to observe in the use of aids. Types of aids; their special uses, availability, and construction.	FM 21-5, ch. 10; FM 21-8; SR 110-1-1; FM 21-6, ch. 8.
8	Student short talk.	8 PE (60 students).	Each student will plan and present a short talk (10 to 15 minutes) in which he applies the techniques of effective oral instruction and speech. Training aids should be used. A lesson plan will be submitted by each student. The presentation will be critiqued by another student and then by the instructor. <i>Note.</i> Process two students per hour in each section.	FM 21-5; FM 21-6.
9	Questioning techniques.	1 C-----	The need for questioning in Army instruction. The conference and the lecture. Advantages of questioning. Characteristics of a good question. Procedure in asking a question. Handling student answers.	FM 21-5, par. 102; FM 21-6, ch. 7.
10	The demonstration method.	1 C-----	The value of the demonstration method. The use of the demonstration. Forms of demonstration. Conduct of a demonstration. Sample demonstration lesson.	FM 21-5, pars. 105-109; FM 21-6, ch. 9.
11	The application stage.	1 C-----	The importance of doing in Army instruction. How we learn skills. Methods of application and their uses. Conduct of practical exercises. Critique of practical work.	FM 21-5, ch. 7; FM 21-6, chs. 10 and 12.

See notes at end of table.

Period	Subject	Hours, type	Scope of instruction	References
12	The examination stage.	1 C-----	The reasons for testing. Types of tests and their uses. Characteristics of a good test. The administration of tests. Critiques of tests.	FM 21-5, ch. 8; FM 21-6, chs. 11 and 13.
13	Student lessons	15 PE (60 students).	Each student will plan and present a long lesson (30 to 35 minutes) in which he will apply those instructional techniques most applicable to the type of subject matter for which he will be responsible in his unit's training. A lesson plan will be submitted for grading. The lesson will be critiqued by another student and the instructor.	FM 21-5; FM 21-6.
14	Final examination and review.	2 E, C--	A comprehensive written test, covering conference work, during the first hour. Review of the test during the second hour.	All previous assignments and class notes.

Total hours required—40.

C—Conference.

D—Demonstration.

PE—Practical Exercise.

E—Examination.

120. Mass Training in Methods of Instruction

a. General. It sometimes becomes necessary to present an orientation or give refresher training in the shortest time possible. The course outlined in this paragraph consists of six hours of conference, primarily on techniques of instruction; no student lessons are presented. The chief value of this course is to motivate the cadre and to let them know the commander's desires with regard to instructional standards.

b. Orientation Course in Methods of Instruction.

Period	Subject	Hours, type	Scope of instruction	References
1	Fundamentals of military instruction.	1 C-----	The instructor's place in military training. Characteristics of the good instructor. How the instructor can improve. Principles of learning which are fundamental to military instruction.	FM 21-6, chs. 1-3.
2	Speech techniques.	1 C-----	Factors affecting the instructor's speech. Speech techniques for the instructor. How the instructor develops more effective speech.	FM 21-6, ch. 6.
3-4	Techniques used in the presentation of instruction.	2 C-----	The development of the instructional situation. Steps in teaching and planning the lesson. How to make explanations clear and vital to the student. The use of questioning techniques. Use of summaries.	FM 21-6, chs. 4, 5, 7.
5	Training aids---	1 C-----	Specific techniques to use with training aids. How to use the blackboard.	FM 21-6, ch. 8.
6	Development of skills and techniques.	1 C-----	Methods used in training the soldier to do his job. The conduct of practical work. How to conduct the critique.	FM 21-6, chs. 10 and 12.

C—Conference

121. The Conduct of Student Lessons

The value of training in instructional methods lies primarily in the students' practice teaching and the skill of instructors in administering and supervising this phase of the course. The following procedures are recommended:

a. Lesson Schedule. Publish a student lesson schedule as far in advance of the first student lesson period as possible. List date, time, student's name, subject, and place.

b. Preparation Time. Make every effort to give each student adequate time for preparation. At this point give assistance freely.

c. Facilities and Equipment. Make available to students, whenever possible, all the facilities and equipment they would be expected to use in an actual training situation with troops.

d. Student Critique. At the beginning of student lessons, explain the procedure to be followed. Appoint a student critic for each lesson; have him conduct a critique of the presentation, using the procedure outlined in this manual. Require all students, including the student critic, to write comments on each presentation; at the end of the lesson collect these written comments and pass them on to the student instructor. As a guide to the critic, and to the other students in writing their comments, a *Student's Critique Sheet* should be furnished. (See appendix II.)

e. Instructor Critique. Following the student's critique, the instructor should present his critique. This is his opportunity to give helpful constructive criticism and also to point out wherein instructional principles and techniques were applied. In observing students, instructors should use a *Supervisory Check Sheet*. (See appendix III.)

122. Improving Instruction Through In-Service Training

The unit commander cannot depend solely on an initial course in methods of instruction to provide high instructional standards. Such a course can lay the groundwork, but if standards are to be maintained and raised the commander must exercise expert supervision and follow through with a sound program of in-service training of his instructors. This training will involve—

a. Conducting Group Conferences. Group conferences should cover new procedures and techniques, coordination of instruction, and suggestions to instructors. These meetings can be informal, and instructors should participate actively.

b. Working With Individual Instructors. All instructors benefit from individual conferences and guidance, although some will need more help than others.

- (1) *All instructors.* Supervisors should confer with instructors as soon as possible after observing their teaching, calling attention to strong and weak points of their lessons and offer-

ing definite suggestions for improvement. In this conference the supervisor must be impersonal and straightforward. He must be specific and must be certain his criticisms are understood. He should allow the instructor to answer criticisms.

(2) *New and inexperienced instructors.* Supervisors should hold conferences with these men to assign them to their teaching duties, to inform them of any special conditions, and to estimate their abilities and aptitudes. The supervisor should check a new instructor's lesson plan as soon as it is written, and should be present at the rehearsal of the lesson to detect mistakes and to suggest means of improvement. He should then observe the class and confer with the instructor as in (1) above.

(3) *Weak instructors.* The technique of improving new instructors also applies to improving weak instructors. Patience and understanding are necessary; but if an instructor shows no improvement after several lessons, he should be assigned to duties more suited to his abilities.

c. Conducting Short Refresher Courses. Short refresher courses covering both subject matter and instructional methods are of value to the in-service instructor training program.

d. Requiring Observation of Classes. Another effective method of improving instruction is that of requiring each instructor to visit and observe critically the work of other instructors. This helps him to learn additional procedures and techniques.

APPENDIX I

REFERENCES

- AR 350-15.... Military Training Aids.
- SR 110-1-1... Index of Army Motion Pictures, Kinescope Recordings, and Film Strips.
- SR 310-20-3.. Index of Training Publications.
- SR 320-5-1... Dictionary of United States Army Terms.
- SR 320-50-1.. Authorized Abbreviations.
- FM 21-5..... Military Training.
- FM 21-8..... Military Training Aids.
- FM 21-30.... Military Symbols.
- TM 11-2323... Projectors PH-637/PFP and PH-637A/PFP.
- T/A 20-2..... Equipment for Training Purposes.

APPENDIX II

STUDENT'S CRITIQUE SHEET

INSTRUCTOR _____

SUBJECT _____

Notes on Student Presentation

STRONG POINTS

SUGGESTED IMPROVEMENTS

Introduction

Explanation/Demonstration

Instructor qualities and speech

Use of training aids

Conference techniques

Discussion/Critique

Preparation

Critic

PROCEDURE FOR CONDUCTING A CRITIQUE

- STEP 1. Restate the objective of the lesson. (What did the instructor expect to accomplish in this lesson?)
- STEP 2. Review procedure employed. (What methods did the instructor employ to accomplish his objective?)
- STEP 3. Evaluate the presentation. (Use your notes to point out the instructor's strength and make suggestions for improvement.)
- STEP 4. Control the group in discussion. (Ask for comments from the class. Encourage participation by calling upon students.)
- STEP 5. Summarize. (Re-emphasize the major points developed in the critique. Address your remarks to the instructor.)
-

GUIDE FOR EVALUATING INSTRUCTION

PRESENTATION:

Introduction

1. Did the instructor establish contact with the class?
2. Was the objective clear?
3. Was the feeling of need created?

Explanation

4. Was the material well organized?
5. Were the main points emphasized?
6. Did the instruction have continuity between points?
7. Were frequent summaries used?
8. Were illustrations and examples used to vitalize the material?

Demonstration

9. Were steps of procedure properly emphasized?
10. Was equipment skillfully handled?
11. Were assistants used properly?
12. Was explanation and demonstration coordinated?
13. Were safety precautions and points of difficulty emphasized?
14. Was demonstration summarized?

Instructor Qualities and Speech Techniques

15. Did the instructor possess poise and confidence?
16. Did he possess good military bearing and appearance?
17. Were any distracting mannerisms present?
18. Was he forceful and enthusiastic in his delivery?
19. Did the instructor maintain contact with the class?
20. Does he express his ideas clearly and fluently?
21. Was the phraseology and usage acceptable?

Use of Training Aids

22. Were the aids used in this lesson adequate?
23. Were they used to the best advantage?
24. Were proper techniques employed?
25. Was blackboard work effective?

Class Participation

26. Did the instructor properly plan for student participation?
27. Were correct conference techniques employed?
28. Were students given an opportunity to apply the material presented?
29. Were student questions and answers handled with skill?

Discussion and Critique

30. Were student questions cleared up?
31. Did the summary emphasize the main points of the subject?
32. Was the closing statement effective?

Preparation

33. Was there evidence of careful planning?
34. Did the general plan for the lesson indicate a sound approach to the subject?
35. Was the best use made of the time available?

APPENDIX III

SUPERVISORY CHECK SHEET

INSTRUCTOR _____ UNIT _____

TITLE OF LESSON _____

REPORT SUBMITTED BY _____ RATING _____

STUDENT CRITIC _____ RATING _____

DIRECTIONS: 1. Rate subtopics under Elements To Be Rated as follows:

- + Plus for performance above average.
- / Check for performance which is average.
- Minus for performance below average.

2. Rate each Element To Be Rated on the Rating Scale by circling the number which best describes the over-all performance for that element. The numbers have the following meanings:

- | | |
|----------------|----------------------|
| 6. Outstanding | 3. Very Satisfactory |
| 5. Superior | 2. Satisfactory |
| 4. Excellent | 1. Unsatisfactory |

3. Write comments to justify your rating of each element of the lesson. List major strengths and make recommendations for improvement.

MAJOR STRENGTHS

RECOMMENDATIONS FOR IMPROVEMENT

NAME _____
UNIT _____

ELEMENTS TO BE RATED

RATING SCALE

INTRODUCTION

Objective

☐

6 | 5 | 4 | 3 | 2 | 1

Reasons

☐

Contact

☐

Interest

☐

EXPLANATION—DEMONSTRATION

Organization Easy to Follow

☐

6 | 5 | 4 | 3 | 2 | 1

Clear Explanation of Points

☐

Emphasis of Key Points

☐

Material Vitalized

☐

Transitions

☐

Summaries

☐

Demonstration

☐

INSTRUCTOR QUALITIES

Appearance & Bearing

☐

6 | 5 | 4 | 3 | 2 | 1

Poise & Confidence

☐

Mannerisms

☐

SPEECH TECHNIQUES

Volume—Use of PA

☐

6 | 5 | 4 | 3 | 2 | 1

Rate

☐

Fluency

☐

Phraseology & Usage

☐

Contact with Class

☐

Force & Enthusiasm

☐

Enunciation & Pronunciation

☐

Gestures

☐

USE OF TRAINING AIDS

Selection of Aids

☐

6 | 5 | 4 | 3 | 2 | 1

Use of Aids

☐

Use of Pointer

☐

Smoothness

☐

Blackboard Work

☐

CLASS PARTICIPATION

Student Participation

☐

6 | 5 | 4 | 3 | 2 | 1

Characteristics of Questions

☐

Techniques

☐

Answers to Student Questions

☐

Application

☐

Examination

☐

DISCUSSION & CRITIQUE

Questions Cleared Up

☐

6 | 5 | 4 | 3 | 2 | 1

Summary

☐

Closing Statement

☐

PREPARATION

Command of Subject

☐

6 | 5 | 4 | 3 | 2 | 1

General Plan for Lesson

☐

Material on Level of Class

☐

Signs of Rehearsal

☐

Timing

☐

Assigned Length _____ Min Time Start _____ Time End _____ Total _____ Min

APPENDIX IV

CHECK CARD FOR ARMY INSTRUCTION

STAGES OF INSTRUCTION

Stage	Activities and Methods
PREPARATION Plan	<ol style="list-style-type: none"> 1. Estimate the training situation. 2. Select and organize subject matter. 3. Make lesson plan. 4. Rehearse the lesson. 5. Make final check.
PRESENTATION Tell—Show	<ol style="list-style-type: none"> 1. Introduction. 2. Explanation—Demonstration. 3. Summary.
APPLICATION Do	<ol style="list-style-type: none"> 1. Group performance. 2. Independent practice. 3. Coach and pupil. 4. Team practice.
EXAMINATION Check	<ol style="list-style-type: none"> 1. Oral tests. 2. Written tests. 3. Performance tests. 4. Observation.
DISCUSSION— CRITIQUE Review	<ol style="list-style-type: none"> 1. Clear up students' questions. 2. Summarize the lesson. 3. Re-emphasize important points. 4. Correct errors made during application and examination stages.

HOW TO EMPLOY THE PRINCIPLES OF LEARNING

Principles of Learning	To Apply the Principles
MOTIVATION	<ol style="list-style-type: none"> 1. Show a need. 2. Develop intent to learn. 3. Maintain interest. 4. Encourage early success. 5. Give recognition and credit. 6. Avoid adverse feelings and emotional barriers to learning. 7. Use competition. 8. Use rewards and punishments when needed.
OBJECTIVE	<ol style="list-style-type: none"> 1. Tell the student what he is to learn and what is expected of him. 2. Present each unit as a part of a whole.
DOING	<ol style="list-style-type: none"> 1. Plan for student activity. 2. Devote as much time as possible to student practice. 3. Ask questions. 4. Use problems.
REALISM	<ol style="list-style-type: none"> 1. Teach material as it is to be used. 2. Teach in terms of field conditions. 3. Stay on the level of the class. 4. Explain subject in terms of how it will be used by the student.
BACKGROUND	<ol style="list-style-type: none"> 1. Build on what the student already knows. 2. Use reviews frequently. 3. Draw on class experiences for illustrations, stories, and examples. <p>Students learn many things in addition to skills and information.</p>
APPRECIATION	<ol style="list-style-type: none"> 1. Teach the soldier—not just the subject. 2. Set a good example. 3. Build aggressiveness, will to fight, character, and attitudes.

THE INTRODUCTION

THE INTRODUCTION IS NEEDED TO:

1. Establish contact.
2. Gain attention.
3. Arouse interest.
4. Disclose and clarify the subject.

THE INTRODUCTION SHOULD INCLUDE:

1. Objective of lesson: Tell students what is to be learned.
2. Reasons for learning: Stress need and battle importance.
3. Standards expected: Let students know exactly what is expected of them.

IT MAY ALSO INCLUDE:

1. Brief statement of procedure to be followed.
2. Review of previous instruction.

TIPS ON DELIVERY

CONTACT: Secure attention. Look at and talk to the class. Be conversational. Don't talk down to the class. Show a genuine interest in your men.

BEARING: Check appearance. Watch your posture. Make movements meaningful. Don't restrict delivery.

MANNERISMS: Avoid those things which cause class to concentrate on you and what you are doing rather than on your subject.

ENTHUSIASM: Present instructions forcefully and enthusiastically.

EMPHASIS: Use repetition, gestures, pauses, and variations in rate, pitch, and intensity.

VOLUME: Be sure you can be heard.

BE UNDERSTOOD: Speak the language of your men. Be sure your ideas are getting across. Enunciate clearly and pronounce correctly.

DON'T MAKE EXCUSES: Don't apologize; you can't sell your subject with a negative attitude.

TIPS ON QUESTIONS AND QUESTIONING

Ask questions which:

1. Have a specific purpose.
2. Are clear and concise.
3. Emphasize one point only.
4. Require definite answers.
5. Are phrased so as to discourage guessing.
6. Are related to the how and the why.

Procedure in asking a question:

1. Ask the question.
2. Pause briefly.
3. Call an individual student by name.
4. Recognize and evaluate student's response.

HINTS ON CLASS MANAGEMENT

1. Before the class begins, check on seating arrangement, lighting, ventilation, instructional materials, equipment, training aids, and assistant instructors.
2. In beginning the class, tell students the nature and purpose of the instruction, why it is important to them, and what, specifically, is expected of them.
3. Present the instruction forcefully and enthusiastically.
4. Be alert to class reactions, and maintain discipline.
5. Direct questions to inattentive students.
6. Question students frequently to check their understanding and to keep the class alert. Recognize correct answers; correct wrong ones.
7. Have sleepy students stand at rear or side of class area.
8. Don't allow students to waste class time arguing a point.

9. Handle problem cases by individual instruction.
10. Illustrate important points with visual aids and realistic examples or illustrations.

PROPER USE OF TRAINING AIDS

1. Select the appropriate aid.
2. Prepare for use of the aid.
3. Explain aid to the class.
4. Keep aids covered when not in use.
5. Show so all can see.
6. Do not obstruct students' view.
7. Talk to the class, not to the aid.
8. Use a pointer.
9. Use assistants to best advantage.
10. Display aids smoothly.

TRAINING FILMS

Steps in using training films:

1. Preview and select film for specific instructional purposes.
2. Check equipment.
3. Introduce film properly. Tell students what it is about and what they should look for.
4. Follow up by practical application, oral discussion, or short quiz.

HOW TO USE THE BLACKBOARD

1. Check on equipment to be used.
2. Check for glare.
3. Keep blackboard clean.
4. Plan your work in advance.
5. Keep material simple and brief.
6. Print and draw on large scale.
7. Use color for emphasis and variety.
8. Don't crowd your work.
9. Erase unrelated material.
10. Prepare complicated illustrations beforehand.

PLANNING AND GIVING A DEMONSTRATION

1. Plan the details of the demonstration.
2. Arrange all tools and equipment properly.
3. Follow a written lesson plan.
4. Demonstrate only one operation at a time.
5. Show how and explain how at the same time, using assistant instructors to greatest advantage.
6. Omit unnecessary information.
7. Emphasize safety precautions.
8. Use visual aids to the greatest advantage.
9. Avoid awkward gaps.
10. Ask questions frequently to make sure that students understand.
11. Encourage students to ask questions.
12. Emphasize the essential points.
13. Set high standards for students by skillful demonstration.
14. Present a summary.

CONDUCTING PRACTICAL WORK

1. Give detailed directions to students.
2. Be sure that students know the **how** and the **why**.
3. Tell students the standards expected of them.
4. Allow sufficient time to attain standards set.
5. Keep instruction first, production secondary.
6. Supervise closely and constantly.
7. See that men perform correctly.
8. Teach each step before progressing to the next.
9. Reteach and redemonstrate when need arises.
10. Stress both speed and accuracy after procedure is learned.
11. Make application realistic.
12. Ask pertinent questions during practical work.

13. Be patient and encouraging.
14. See that all safety precautions are observed.
15. Show positive interest in student progress.
16. Have good students aid slower students.
17. Help students evaluate their performance.
18. Rotate students from one job to another.

HOW TO CONDUCT A CRITIQUE

(All applicatory exercises should close with a critique)

1. State the objective of the lesson or problem.
2. Review procedures employed.
3. Evaluate strong points and suggest improvements.
4. Control the group in discussion.
5. Summarize.

SUPERVISING INSTRUCTION—CLASS VISITATION

1. Scheduled visits are unannounced.
2. Visit for complete period of instruction.
3. Study specific aspects of instruction.
4. Appraise the whole situation.
5. Refrain from taking part in class activities **except to** correct glaring errors.
6. Keep a record of the results of observation.
7. Discuss instruction with instructor privately.

APPENDIX V

LESSON OUTLINES FOR A METHODS-OF-INSTRUCTION COURSE

INSTRUCTIONAL UNIT: Fundamentals of Military Instruction.

TYPE: Conference.

TIME ALLOTTED: 50 minutes.

CLASSES TO WHOM PRESENTED:

TOOLS, EQUIPMENT, AND MATERIALS: None.

PERSONNEL: Instructor and one assistant.

INSTRUCTIONAL AIDS: Blackboard or Venetian blind; slides or charts of figures 7 and 8, FM 21-6.

REFERENCES: FM 21-5, ch. 4; FM 21-6, ch. 3.

STUDY ASSIGNMENTS: Same as references.

STUDENT UNIFORM AND EQUIPMENT: Uniform as prescribed in training schedule; notebook and pencil.

TROOP REQUIREMENTS: None.

TRANSPORTATION REQUIREMENTS: None.

1. INTRODUCTION.

a. Reasons. There are certain fundamental elements of military instruction which provide a basis for all other instructional techniques and methods. The instructor must understand and apply these fundamentals in order to teach effectively.

b. Objective. In this lesson we will cover these fundamentals.

- (1) The student.
- (2) The instructor.
- (3) The development of instruction through its five stages.

2. EXPLANATION.

a. The Student.

- (1) The importance of knowing the students.
- (2) Characteristics common to military students.
 - (a) They are mature and should be treated as men.
 - (b) Most are sincere and eager to learn.
 - (c) Most are capable of learning if they are well taught.
 - (d) They are interested in the practical application of the things taught.
 - (e) They want to know *why* and *how*.
 - (f) They will be quick to respond to the good instructor.
- (3) Bits of advice in dealing with students.
 - (a) Never bluff.
 - (b) Never use profanity or obscenity.
 - (c) Never use sarcasm or ridicule.
 - (d) Never talk down to a class.
 - (e) Never lose patience.
 - (f) Always stress the battle importance of the subject.

b. *The Instructor.*

(1) Qualifications of the good instructor.

Note. Use blackboard or Venetian blind as training aid. Ask class for qualifications and write or show these as students give them.

- (a) Knowledge of the subject.
- (b) Knowledge of methods of instruction.
- (c) Personality.
- (d) Leadership.
- (e) Professional attitude.

(2) How the instructor can improve.

Note. Have points on blackboard (stripped) or on Venetian blind. Figure 7, FM 21-6, may be used.

- (a) Know what makes good instruction.
- (b) Observe other instructors.
- (c) Analyze your characteristics.
- (d) Concentrate on specific elements.
- (e) Seek help of associates.
- (f) Make a constant effort to improve.

c. *Stages of Instruction.* How the instructional job is logically divided into five stages.

- (1) Preparation: *plan.*
- (2) Presentation: *tell and show.*
- (3) Application: *do.*
- (4) Examination: *check.*
- (5) Review and/or critique: *review.*

Note. Use figure 8, FM 21-6, as a training aid.

Examples: Possible combinations of the stages of instruction are shown here; point out, using the blackboard.

Note. PREPARATION would precede each of the following.

A lesson employing the lecture or conference method might be organized as follows:

- 1. INTRODUCTION.
- 2. EXPLANATION.
- 3. REVIEW.
 - a. *Clear up questions.*
 - b. *Summarize.*
 - c. *Make closing statement.*

A lesson in which a short practical exercise is used might include these stages:

- 1. PRESENTATION.
 - a. *Introduction.*
 - b. *Explanation.*

2. APPLICATION AND EXAMINATION.

3. CRITIQUE.

- a. Review objective and procedures.*
- b. Evaluate performance.*
- c. Conduct discussion.*
- d. Summarize.*

A lesson employing the group performance method:

1. PRESENTATION.

- a. Introduction.*
- b. Explanation.*

2. GROUP PERFORMANCE.

3. CRITIQUE.

- a. Review objective and procedures.*
- b. Evaluate performance.*
- c. Conduct discussion.*
- d. Summarize.*

Question: Which two of the five stages of instruction are frequently combined?

Note. The stages used and the manner in which they are employed depend upon the instructor's plan for the learning activities.

The important thing is that the instructor have a clear concept of what is done in each of the stages of instruction.

3. REVIEW.

- a. Clear up any questions which students might have.*
- b. Reemphasize any assignments which have been made.*
- c. Summarize.*

- (1) The student.
- (2) The instructor.
- (3) The stages of instruction.

d. Closing statement. This course is designed to assist Army personnel to carry out their instructional duties. As an officer or a non-commissioned officer you will be required to teach. You should not only be a specialist in Army subject matter, but you should also be skillful in effecting the training of others. Remember this: The success of the training program depends upon good instruction. If our Army is to be well trained, the instructors must know their jobs.

INSTRUCTIONAL UNIT: Principles of Learning.

TYPE: Conference.

TIME ALLOTTED: 50 minutes.

CLASSES PRESENTED TO:

TOOLS, EQUIPMENT, AND MATERIALS: None.

PERSONNEL: Instructor and one assistant.

INSTRUCTIONAL AIDS: Charts or slides of figures 2 through 6, FM 21-6.

REFERENCES: FM 21-5, pars. 60 through 62, 64 and 65; FM 21-6, ch. 2.

STUDY ASSIGNMENTS: Same as references.

STUDENT UNIFORM AND EQUIPMENT: Uniform as prescribed in training schedule; notebook and pencil.

TROOP REQUIREMENTS: None.

TRANSPORTATION REQUIREMENTS: None.

1. INTRODUCTION.

a. *Reasons.*

- (1) Background needed before techniques. The student in an instructor-training course is usually particularly desirous of acquiring techniques, methods, or ways to do the teaching job. These will be included in this course; but before we consider them, we need a background in some of the considerations which are basic to the learning process.
- (2) Principles are basic to methods.

b. *Objective and standards.* In this conference we will consider—

- (1) The nature of learning.
- (2) Principles of learning which can be applied to instructional techniques.

Transition: Let us start with a consideration of learning in general by asking, "What is learning?"

2. EXPLANATION.

a. *The nature of learning.*

- (1) What is learning? Learning has been defined as *the process of acquiring the ability to do something that the learner could not do before.*

Note. Use figure 2, FM 21-6.

Question: What do you think of this statement? Is it true?

- (2) Learning is an active process.
- (3) Learning results from stimulation through the senses.

Question: What does this statement mean to the instructor?

- (4) Types of learning.
 - (a) Knowledge.
 - (b) Abilities.
 - (c) Appreciations.

Note. Give examples from military training to illustrate these types of learning.

b. Principles of learning.

Note. Use figure 3, FM 21-6.

- (1) **Motivation.** Learning is more efficient when the student is motivated properly.
 - (a) Show a need. Give the students reasons for learning.
Stress the importance of the instruction.
 - (b) Develop an intent to learn.
 - (c) Maintain interest.
 - (d) Encourage early success.
 - (e) Give recognition and credit.
 - (f) Avoid feelings and emotional responses which interfere with efficient learning.
 - (g) Use competition.
 - (h) Use rewards or punishments.
- (2) **Objective.**

Note. Use figure 4, FM 21-6.

- (a) Learning is more efficient, and less time is wasted, when the student is aware of what he is to learn and what is expected of him.
 - (b) This principle also stresses the need for presenting each unit of the lesson as a part of a whole.
 - (c) Stress objectives and standards in the introduction to each lesson.
 - (d) Clarity of organization helps the student to see how instruction fits into a larger pattern.
- (3) **Doing.** The most efficient way of learning is by doing.

Note. Use figure 5, FM 21-6.

- (a) Students learn a vastly higher percentage of what they do than of what they hear, read, or see.
 - (b) Mental and physical activity should be planned in the instruction.
 - (c) Activities must emphasize correct procedure.
 - (d) Thinking, talking, writing, problem-solving, are some of the forms of doing.
 - (e) Instruction must teach how to do and then provide the opportunity to do.
- (4) **Realism.** Learning is more effective when learning activities are realistic. Each lesson or main point should be subjected to the test of these questions:

Note. Use figure 6, FM 21-6.

- (a) Is this the way that this material will be used by the soldier in actual practice?

- (b) Is the presentation realistic as far as the level of the class is concerned?
- (c) Am I alert to every opportunity to show the man how this subject will help him in his job?
- (5) Background. Learning is more efficient when the background of the learner is made to contribute to the learning task. New learning is acquired best by building on what the student already knows. Instruction should be conducted on a progressive basis. Use of a review in the introduction of a lesson facilitates further learning by helping the student recall what has been learned previously.
- (6) Appreciation. Learning is complete only when the learner has acquired the attitudes, appreciations, interests, ideals, and habits of conduct which enable him to apply correctly the things learned.
 - (a) Students learn more than knowledge and abilities.
 - (b) Instructors must develop positive attitudes; value of training must be stressed.
 - (c) Train men, do not merely teach subjects.

3. REVIEW.

a. Clear up questions which students might have.

b. Summarize.

- (1) The nature of learning.
- (2) Principles of learning.
 - (a) Motivation.
 - (b) Objective.
 - (c) Doing.
 - (d) Realism.
 - (e) Background.
 - (f) Appreciation.

c. Closing statement. As an instructor, you are primarily interested in the development of students under your direction. Apply these principles of learning in all your training activities. They are fundamental conditions under which learning takes place most efficiently.

INSTRUCTIONAL UNIT: Planning the lesson.

TYPE: Conference.

TIME ALLOTTED: 50 minutes.

CLASSES PRESENTED TO:

TOOLS, EQUIPMENT, AND MATERIALS: Lesson plan forms; sample lesson plan.

PERSONNEL: Instructor and one assistant.

INSTRUCTIONAL AIDS: Charts or slides of figure 9, FM 21-6.

REFERENCES: FM 21-5, ch. 5; FM 21-6, ch. 4.

STUDY ASSIGNMENTS: Same as references.

STUDENT UNIFORM AND EQUIPMENT: Uniform as prescribed in training schedule; notebook and pencil.

TROOP REQUIREMENTS: None.

TRANSPORTATION REQUIREMENTS: None.

1. PRESENTATION.

a. Introduction.

- (1) Objectives and standards. To learn accepted procedures for the planning of instruction, to include steps in planning a lesson.
- (2) Reasons. The instructor must be able to plan for all factors involving the effective presentation of subject matter. He will be better able to do this anticipatory thinking if he follows definite steps of procedure.

b. Explanation.

- (1) Estimate the training mission.
 - (a) Equipment, facilities, and training aids.
 - (b) State of training.
 - (c) Time.
 - (d) Instructional personnel.
 - (e) Mission.
 - (f) Analysis.
 - (g) Training conditions.
 - (h) Every problem anticipated.

Note. Use figure 9, FM 21-6, as a chart. Develop by asking students to give points to be considered in the estimate; uncover each point as given by students.

- (2) Select and organize subject matter.
 - (a) Select material from recognized sources.
 - (b) Select material vital to the lesson.
 - (c) Organize material first into main topics.
 - (d) Arrange topics into best order.
 - (e) Have each topic supported by well chosen and organized subtopics.

(f) Seek an organization which will provide a vehicle for the teaching points (case method).

1. Historical examples.

2. Situation.

3. Problem.

(3) Make the lesson plan.

(a) The purpose of the lesson plan is to:

1. Aid in wise selection of material.

2. Give proper emphasis to each part.

3. Outline procedures in sequence.

4. Relate lesson to course objectives.

5. Give the instructor confidence.

6. Aid in arranging physical facilities.

7. Review the lesson before teaching it.

Question: Why should the instructor use a lesson plan?

(b) Contents of the plan.

1. List title, training aids, references, time required, and other such information in the heading.

2. Outline material to be taught.

3. Include the teaching procedures to be used.

4. Provide for each stage of instruction.

Note. Show sample lesson plans and outline for lesson plan.

(4) Rehearse the lesson.

(a) Develop coordination with assistants.

(b) Check the timing.

(c) Arrange for constructive criticism by an audience.

(5) Make the final check of—

(a) Equipment.

(b) Physical setup.

(c) Training aids.

(d) Every anticipated need.

2. EXAMINATION. Oral questions.

a. Suppose you were to receive an assignment to teach a lesson on how to measure distance on a map. What questions would you ask yourself in your estimate of the situation?

b. What other steps would you take in the preparation of your lesson?

c. Assume that instructors in your training program feel that lesson plans are a waste of time. What reasons could you give them for having lesson plans?

3. REVIEW.

a. Clarify student questions relative to lesson.

b. Summarize.

(1) Estimate the training situation.

(2) Select and organize subject matter.

- (3) Make a lesson plan.
- (4) Rehearse the lesson.
- (5) Make a final check.

c. *Make a closing statement.* Careful planning is always the first and most important stage of instruction. In nearly every case the student's failure to learn can be traced to the instructor's inadequate planning. Most instructors complain that they do not have adequate time for careful planning. The only solution to this problem lies in an orderly and systematic approach to all planning activities. The steps presented in this unit will provide the instructor with a systematic procedure.

INSTRUCTIONAL UNIT: Presenting Oral Instruction.

TYPE: Conference.

TIME ALLOTTED: 50 minutes.

CLASSES PRESENTED TO:

TOOLS, EQUIPMENT, AND MATERIALS: Student outline.

PERSONNEL: Instructor.

INSTRUCTIONAL AIDS: Venetian blind strips—see annex; charts or slides of figures 12 through 14, FM 21-6.

REFERENCES: FM 21-5, pars. 89 through 99, 110 and 182 through 190; FM 21-6, chs. 5 and 12.

STUDY ASSIGNMENTS: Same as references.

STUDENT UNIFORM AND EQUIPMENT: Uniform as prescribed in training schedule; notebook and pencil.

TROOP REQUIREMENTS: None.

TRANSPORTATION REQUIREMENTS: None.

1. INTRODUCTION.

a. Reasons.

- (1) Most Army methods of instruction make use of oral instruction. The instructor's effectiveness will be determined by his ability to present instruction orally.
- (2) An understanding of the mechanics of the oral presentation will make the instructor's job of preparation easier and will help insure the student's learning the subject.

b. Objective. This unit will include—

- (1) How to introduce the lesson.
- (2) How to handle problems of oral instruction which often arise in the explanation.
- (3) How to use summaries.

2. EXPLANATION.

a. The introduction.

- (1) The introduction is needed to—
 - (a) Establish contact.
 - (b) Arouse interest and secure attention.
 - (c) Disclose and clarify the subject.

Note. Use examples to illustrate these points.

- (2) The introduction should include—
 - (a) Objective. What is to be learned?
 - (b) Reasons. Why is it important?

Note. The introduction also may include (c) through (e) below.

- (c) Standards. What is expected? (This is important if specific standards are required or if the objective is given in broad terms.)
- (d) Review. How does this lesson relate to previous instruction?

(e) Procedure. How will the lesson proceed?

Example: Use a sample introduction to illustrate the use of these elements. Ask students to recognize the elements as you give them.

Note. Use figure 12 FM 21-6, as a chart.

Note. These elements follow no set order in an introduction, nor it is intended that opening remarks become stereotyped in their presentation. It is recommended that the instructor write out or fix in his mind what he intends to say in the introduction, and then check to see that he has given the *objective*, the *reasons* or *importance*, and, if needed, the *specific standards*.

b. *The explanation.* Here are some of the problems which the instructor will meet in preparing the body of his oral presentation, with suggestions as to how to handle them.

(1) Organization.

(a) Have some reason for the order of your main points.
Logical organization is the result of a plan.

(b) Limit the number of main points.

(c) Make the class aware of your main points.

(2) Transitions. Getting from point to point can be accomplished smoothly by—

(a) Using summaries.

(b) Referring often to the objective.

(c) Using connective phrases.

(d) Using rhetorical questions.

(e) Actually enumerating points.

(3) Interest. Interest in your subject will be enhanced by—

(a) Illustrations, stories, and examples.

(b) Specific rather than general treatment of your subject.

(c) Use of training aids.

(4) Emphasis.

Note. Use figure 13, FM 21-6, as a chart.

c. *The summary, or review.*

(1) Use of summaries.

(a) Use frequent, short summaries throughout the lesson.

(b) Always summarize at the end.

(2) Content of the summary.

(a) Recap main points.

(b) Re-emphasize important ideas.

(c) Make closing statement.

Note. Use figure 14, FM 21-6, as a chart.

3. REVIEW.

a. *Clear up students questions.*

b. *Summarize.*

(1) The introduction.

(2) The explanation.

(3) The summary.

c. *Make a closing statement.* The effectiveness of any instructional method or teaching procedure depends upon the degree of interest it arouses and holds, the thinking which it stimulates, and the activity—mental or physical—which it encourages. These results are effected by the instructor's intelligent and varied use of the materials which have been presented in this unit. A good introduction, a clear explanation, and effective summaries will contribute toward the learning process.

ANNEX

Presenting Oral Instruction

Venetian Blind Chart 1:

We Need an Introduction

To establish contact.

To arouse interest.

To disclose and clarify the subject.

A Good Introduction Should Include

Objective of the lesson.

Reason for learning.

Standards expected.

Procedure to be followed.

Review of previous instruction.

Venetian Blind Chart 2:

Consider in the Explanation

Organization.

Transitions.

Interest (make it vital).

Emphasis.

Consider in the Summary

Clarification of student questions.

Recap of main points.

A strong closing statement.

INSTRUCTIONAL UNIT: Speech Techniques.

TYPE: Conference.

TIME ALLOTTED: 50 minutes.

CLASSES PRESENTED TO:

TOOLS, EQUIPMENT, AND MATERIALS: None.

PERSONNEL: Instructor, one assistant instructor.

INSTRUCTIONAL AIDS: Graphic training aid chart—see annex; charts or slides of figures 15 through 19, FM 21-6.

REFERENCES: FM 21-5, pars. 167 through 181; FM 21-6, ch. 6.

STUDY ASSIGNMENTS: Same as references.

STUDENT UNIFORM AND EQUIPMENT: Uniform as prescribed in training schedule; notebook and pencil.

TROOP REQUIREMENT: None.

TRANSPORTATION REQUIREMENTS: None.

1. INTRODUCTION.

a. Objective. To learn definite techniques which may be used by the instructor in the improvement of his speech.

b. Reasons. All methods of instruction require ability in speech techniques. The military leader must be able to apply good speech techniques in his instruction and in his other activities.

2. EXPLANATION.

a. Qualities of speech. What makes the instructor's speech effective? The instructor should have certain fundamental qualities in his speech. He should have a sense of communication, physical vitality and enthusiasm, poise and control, and genuineness and earnestness. These qualities are achieved by the instructor through:

- (1) Knowledge of the subject (his preparation).
- (2) Personality.
- (3) Speech techniques.

Note. Ask class for these points. Write them on blackboard as they are given.

b. Techniques of delivery.

- (1) Get contact with the students and keep it.

Note. Use figure 15, FM 21-6.

- (a) Be sure you have the attention of the class before starting. Ask for their attention. Be physically alert.
 - (b) Look at and talk to the class. Avoid overuse of notes.
 - (c) Be conversational in your delivery.
 - (d) Be alert to the class. Do not talk down to your students.
- (2) Control nervousness.
 - (a) Be thoroughly prepared; have a plan to follow.
 - (b) Assume the proper mental attitude.
 - (c) Review of previous instruction or a story will help to get started. Having your initial remarks well in mind helps.

- (d) Be deliberate; slow down. When you are nervous, there is a tendency for you to speed up.

(3) Maintain bearing.

Note. Use figure 16, FM 21-6.

- (a) Check appearance before class.
 - (b) Watch your posture; do not slouch.
 - (c) Movements should be decisive and purposeful.
 - (d) Deliver your instruction with the total physical resources you have available. Do not restrict your delivery.
- (4) Avoid mannerisms which distract. The guiding rule here is: Avoid those things which cause the class to concentrate upon you and what you are doing rather than on your subject.

Note. Use figure 17, FM 21-6.

(5) Be enthusiastic.

Note. Use figure 18, FM 21-6.

- (a) There is no substitute for a physically vital and enthusiastic delivery. Enthusiasm is contagious.
 - (b) Gestures should be natural.
- (6) Be sure you are heard.
- (a) Be sure the men in the rear of the class can hear you. Have an assistant signal to you when volume is not adequate.
 - (b) Use variety.
- (7) Be sure you are understood.
- (a) Develop a sense of communication. Get your ideas over to the student. Use words which are on the level of your class.
 - (b) Rate of speech depends upon the subject matter and the students' understanding.
 - (c) Pause must punctuate, not mutilate.
 - (d) Enunciate clearly and pronounce correctly.
- (8) Do not make excuses.

Note. Use figure 19, FM 21-6.

c. *How you can improve your speech.*

- (1) Develop a critical understanding of good speech.
- (2) Practice good speech techniques at all times.

3. REVIEW.

a. *Clear up questions which students may have.*

b. *Summarize.*

- (1) Characteristics of good speech.
- (2) Techniques of delivery.
- (3) How the instructor can improve his speech.

c. *Make a closing statement.* The application of the techniques considered here will enable the instructor to do a creditable job of speaking. He should develop a sense of communication when he speaks; deliver his ideas with physical vitality, enthusiasm, genuineness, and earnestness; and speak with the full resources of his personality. Good speech is a MUST.

ANNEX

Speech Techniques

GTA CHART

Factors Affecting an Instructor's Speech

Knowledge of Subject.

Personality.

Speech Techniques.

Speech Techniques

Get Contact and Keep It.

Control Nervousness.

Maintain Military Bearing.

Avoid Mannerisms.

Be Enthusiastic.

Be Sure You Are Heard.

Be Sure You Are Understood.

Do Not Make Excuses.

How To Improve Speech

Understand Good Speech Techniques.

Set Standards for Your Speech.

Practice Good Speech.

INSTRUCTIONAL UNIT: Training Aids.

TYPE: Conference.

TIME ALLOTTED: 50 minutes.

CLASSES PRESENTED TO:

TOOLS, EQUIPMENT, AND MATERIALS: None.

PERSONNEL: Instructor, one assistant instructor.

INSTRUCTIONAL AIDS: Samples of locally constructed training aids; Overhead Projector PH-637 with at least one transparency; Opaque Projector PH 132 with slide material; charts or slides of figures 24 and 26 through 32, FM 21-6.

REFERENCES: FM 21-5, ch. 10; FM 21-8; FM 21-6, ch. 8; SR 110-1-1.

STUDY ASSIGNMENTS: FM 21-5, ch. 10; FM 21-6, ch. 8.

STUDENT UNIFORM AND EQUIPMENT: Uniform as prescribed; notebook and pencil.

TROOP REQUIREMENTS: None.

TRANSPORTATION REQUIREMENTS: None.

1. INTRODUCTION.

a. Reasons.

- (1) Studies during World War II revealed that the use of training aids in Army instruction resulted in a material increase in students' retention of information.
- (2) The more senses involved in the learning process, the more likely that learning will take place. Training aids will help expedite learning.
- (3) No lesson is complete without training aids—they are the instructor's basic tools of his trade.

b. Objectives. To gain an understanding of the—

- (1) Purposes of training aids.
- (2) Characteristics of good aids.
- (3) Proper techniques to employ in the use of aids.

2. EXPLANATION.

a. Why we use training aids in Army instruction.

- (1) Appeal to the senses.
- (2) Interest the learner.
- (3) Develop understanding.
- (4) Save time.

Note. Point out memory device (A-I-D-S, initial letters of (1) through (4) above).

b. Characteristics of a good training aid.

Note. Use figure 24, FM 21-6.

- (1) Appropriate.
- (2) Simple.
- (3) Accurate.
- (4) Portable and durable.

- (5) Manageable.
- (6) Attractive.
- (7) Necessary.

c. Types of training aids.

Note. Briefly discuss the advantages and limitations of the following training aids as they apply to your situation.

- (1) Actual objects, such as weapons, radio sets, vehicles.
- (2) Models and sand tables.
- (3) Cutaways.
- (4) Maps, charts, posters, pictorial illustrations, and diagrams.
- (5) Blackboards.
- (6) Training films and film strips.
- (7) Projected slides.

Note. Point out that each instructor should be familiar with FM 21-8.

**d. Aids that can be constructed locally.*

Note. Demonstrate the use of these aids.

- (1) Venetian blind aid.
- (2) A-frame support for graphic portfolios and throwover charts.
- (3) Slides.
- (a) Overhead projector.

Note. Demonstrate the use of the overhead projector.

- (b) Opaque projector.

Note. Demonstrate use of and materials for this projector.

- (4) Hints on production of maps, charts, and diagrams.

e. Techniques in the use of training aids.

Note. Give example to illustrate each of the techniques listed.

- (1) Select the appropriate aid.
- (2) Prepare for the use of the aid.
- (3) Explain the aid to the class.
- (4) Keep aids covered when they are not in use.
- (5) Show aid so that all the students can see it.
- (6) Do not obstruct the student's view.
- (7) Talk to the class, not to the aid.
- (8) Use a pointer.
- (9) Use assistants to the best advantage.
- (10) Display aids smoothly.

Note. Use figures 26 through 30, FM 21-6.

f. Use of the blackboard.

- (1) Check on equipment to be used.
- (2) Check for glare. Use of green chalkboards.
- (3) Keep blackboard clean.
- (4) Plan your work in advance.

- (5) Keep material simple and brief.
- (6) Print and draw legibly.
- (7) Use color for emphasis and variety.
- (8) Don't crowd your work.
- (9) Erase unrelated material.
- (10) Prepare complicated illustrations beforehand.

Note. Demonstrate these techniques. Use figure 31, FM 21-6.

g. Use of training films.

- (1) Preview film.
- (2) Check equipment.
- (3) Introduce the film.
- (4) Show film.
- (5) Follow up by—
 - (a) Practical application.
 - (b) Oral discussion.
 - (c) Short quiz.
 - (d) Demonstrations and exhibits.
 - (e) Second showing.

Note. Use figure 32, FM 21-6.

3. REVIEW.

a. Clarification of points brought up by students.

b. Summary.

- (1) Why we use training aids.
- (2) Characteristics of a good training aid.
- (3) Types of training aids.
- (4) Procurement and construction of aids.
- (5) Techniques in the use of training aids.
- (6) Use of the blackboard.
- (7) Use of training film.

c. Closing statement. The proper use of training aids requires thorough preparation on the part of the instructor. Training aids should be a planned part of the instruction in all subjects. Their effectiveness is not determined by size, complexity, or cost, but by the assistance they provide the student in developing an understanding of the subject. If student learning is not facilitated, they are not an aid but are a distraction.

INSTRUCTIONAL UNIT: Questioning Techniques.

TYPE: Conference.

TIME ALLOTTED: 50 minutes.

CLASSES PRESENTED TO:

TOOLS, EQUIPMENT, AND MATERIALS: None. (Questions in the **APPLICATION AND EXAMINATION** part of outline may be used as a quiz.)

PERSONNEL: Instructor, one assistant instructor.

INSTRUCTIONAL AIDS: Slides or charts of figures 20 through 23, FM 21-6.

REFERENCES: FM 21-5, par. 102; FM 21-6, ch. 7.

STUDY ASSIGNMENTS: Same as references.

STUDENT UNIFORM AND EQUIPMENT: Uniform as prescribed; notebook and pencil; FM 21-6.

TROOP REQUIREMENTS: None.

TRANSPORTATION REQUIREMENTS: None.

1. PRESENTATION.

a. Introduction.

(1) Objective and standards.

- (a) To gain an appreciation of the value of the question in all methods of instruction.
- (b) To learn how to use questioning techniques correctly.
- (c) To encourage wider use of questions in instruction.

(2) Reasons.

- (a) The question is one of the most effective means used in oral instruction to obtain and sustain active student participation.
- (b) The successful instructor makes wide use of questions and of questioning techniques.

b. Explanation.

(1) The use of questions. The question is an important element in all teaching situations. Although it is the distinguishing feature of the conference method, its use is not confined to this method. It can be used effectively—

- (a) In the conference.
- (b) In the demonstration.
- (c) In the practical exercise.
- (d) In discussion after lecture.
- (e) As a summary device.

(2) Advantages of questioning.

Question: In those lessons in which it is possible and practicable, what are the advantages of asking questions or employing the conference method instead of the pure lecture?

- (a) Increases student interest.
- (b) Stimulates student thinking.
- (c) Gears instruction to the class.

- (d) Provides opportunity for expression of student attitudes.
- (e) Introduces new material from the pool of class experiences.
- (f) Emphasizes main points and provides drill.
- (g) Tests the effectiveness of the instruction.

Note. Above points may be listed on the blackboard as they are contributed by students in the discussion, or they may be listed on a previously prepared blackboard, Venetian blind, overhead projector slide, or chart, stripped so that each point can be revealed as contributed. See figure 20, FM 21-6.

- (3) The lecture method versus the conference method. Each method serves a definite need and function in Army instruction. The instructor should use questions whenever possible. The use of the lecture instead of the conference is justified when—

- (a) The class is large.
- (b) Many ideas must be presented in a short time.
- (c) Basic material is presented.
- (d) Introducing other methods.
- (e) Summarizing rapidly the subject matter which was taught previously.

- (4) Questioning techniques.

- (a) Characteristics of a good question. A good question—

- 1. Has a specific purpose.

WRONG: Are there any questions?

RIGHT: Are there any questions concerning this phase of the subject?

- 2. Is understood by students.

Note. Use figure 21, FM 21-6.

WRONG: Why is the use of symbolic characters of such significance to the artificer in cartography?

RIGHT: Why are symbols so important to the map maker?

- 3. Emphasizes one point.

WRONG: What is a supercharger? How does it work?

RIGHT: Ask two separate questions.

- 4. Requires definite answers.

WRONG: Who can tell me the range of the M1 rifle?

RIGHT: What is the maximum effective range of the M1 rifle?

- 5. Discourages guessing.

Note. Use figure 22, FM 21-6.

- (a). *Yes* or *no* questions are undesirable if the class is not told to explain answers.

WRONG. Does the M48 tank use the torsion bar suspension system?

RIGHT: With what type of suspension system is the M48 tank equipped?

(b) Answer should not be suggested in question.

WRONG. Is this vehicle equipped with an AN/VRC-3 or an AN/VRC-4?

RIGHT: With what radio is this vehicle equipped?

(b) How to ask questions.

1. State the question, pause, then call on a student.
2. Recognize and evaluate the student's answer.
3. Distribute questions around the class in no set order.
4. Ask questions in a natural, interested, conversational tone.
5. Encourage students to ask questions.
6. Do not bluff.

Note. Use figure 23, FM 21-6.

(c) Handling students' answers to questions.

1. Require student to answer so he can be heard by all. Repeat answers or questions, if necessary.
2. Avoid concert answers. Do not permit prompting. Train men to respond properly.
3. Give credit for all answers.
4. Encourage student success.

(d) Handling student questions.

1. Let other students answer, if possible.
2. If answer is not known, look it up *and tell class*.

2. APPLICATION AND EXAMINATION.

Read sample questions and obtain class evaluation of them on the basis of the instruction given.

a. With what must the rifle be cleaned? Sgt Smith. (Vague; no definite answer.)

b. The instructor glances at his watch, winds it, and asks, "Are there any questions?" (No definite purpose.)

c. How many turns of the micrometer barrel are equal to one tenth of an inch? Sgt Jones. (Correct.)

d. Sgt Ray. How many mils are there in a circle? (Asked incorrectly.)

e. What pernicious consequences might be anticipated if erroneous lubrication is pursued? Sgt Roe. (Not understandable.)

f. Who can tell me the main features of the fuel supply system? Cpl Smith. (Not definite.)

g. Is there an 81-mm mortar in the medium tank company? Sgt Davis. (*Yes or no* question.)

h. What is the function of the thermostat, and how do you adjust the fan belt? Sgt Jones. (Two questions in one.)

3. REVIEW.

a. *Questions from the class.*

b. *Summary.*

- (1) The uses of questioning.
- (2) Advantages of questioning.
- (3) The lecture versus the conference.
- (4) Questioning techniques.
 - (a) Characteristics of good questions.
 - (b) How to ask questions.
 - (c) Handling student answers.
 - (d) Handling student questions.

c. *Closing Statement.* The good instructor will make wide use of questioning as an instructional device. In order to use the question effectively, the instructor must be alert to instructor-student relationships and must use proper questioning techniques. Use well-designed questions frequently. Remember that learning is an active process. The question may be used to stimulate in the student the mental activity necessary for learning.

INSTRUCTIONAL UNIT: The Demonstration Method.

TYPE: Conference and demonstration.

TIME ALLOTTED: 50 minutes.

CLASSES PRESENTED TO:

TOOLS, EQUIPMENT, AND MATERIALS: None.

PERSONNEL: One instructor and one assistant instructor.

INSTRUCTIONAL AIDS: Blackboard, or Venetian blind strips of figure 33,

FM 21-6; a weapon to use in the skit.

REFERENCES: FM 21-5, pars. 105 through 109; FM 21-6, ch. 9.

STUDY ASSIGNMENTS: Same as references.

STUDENT UNIFORM AND EQUIPMENT: Uniform as prescribed; notebook and pencil.

TROOP REQUIREMENTS: None.

TRANSPORTATION REQUIREMENTS: None.

1. PRESENTATION.

a. *Introduction.*

- (1) Reasons. The Army instructor must frequently *show* as well as *tell*. The demonstration is one of his most effective methods of instruction if properly planned and presented. The understanding of the uses of the demonstration and how to plan and conduct it is an essential requirement.

Note. Demonstrate the value of showing by asking a student to tell, without showing, how to smoke a cigarette, put on a coat, or describe a spoon.

(2) Objective.

- (a) Uses of the demonstration.
- (b) Forms of the demonstration.
- (c) Specific points which should be observed in planning and giving the demonstration.

b. *Explanation.*

- (1) Purpose of the demonstration. The demonstration may be used to teach—

- (a) Manipulative operations.
- (b) Principles and theories.
- (c) Operations and functioning.
- (d) Tactical movements.
- (e) Procedures.
- (f) Appreciations.

Note. Cite examples of each of the above uses. Call on students for other examples. List on blackboard. See figure 33, FM 21-6.

(2) Forms of the demonstration.

- (a) The procedural demonstration.
- (b) Displays.

- (c) Field demonstrations.
- (d) Motion pictures.
- (e) The skit or playlet.

Note. Cite examples of demonstrations employing the above forms. Call on students for additional examples. List forms on blackboard.

- (3) Specific points to observe in planning and conducting demonstrations.

Note. It is recommended that the instructor actually demonstrate each of the points taught. He may use a weapon or a piece of equipment to illustrate his points. One effective approach to this problem is to give an ineffective demonstration and then ask the class for the points which should have been observed.

- (a) Plan details carefully.
 - 1. Arrange tools and equipment.
 - 2. Arrange students.
 - 3. Follow a written lesson plan.
 - 4. Demonstrate one thing at a time.
- (b) Be alert to your class.
 - 1. Maintain proper position.
 - 2. Talk to the class.
 - 3. Check frequently to see that students understand.
 - 4. Encourage students to ask questions.
 - 5. Use additional aids.
 - 6. Summarize.
- (c) Coordinate explanation and demonstration.
 - 1. Keep explanations brief and to the point.
 - 2. Avoid awkward gaps.
 - 3. Emphasize the essential points.
- (d) Emphasize safety precautions.

Note. List main points on blackboard or use Venetian blind strips.

2. EXAMINATION. Oral questions.

- a. Why is it important to write a lesson plan when planning a demonstration?
- b. Why are additional training aids sometimes used in a demonstration?
- c. How may the instructor's use of questions make learning more effective during a demonstration?
- d. At what point in the demonstration should specific precautions be emphasized?
- e. Of what should the summary at the end of a demonstration consist?
- f. How does the instructor set standards of proficiency for the students?

g. Why is the arrangement of students and equipment important to the instructor conducting a demonstration?

3. REVIEW.

a. *Ask for questions relating to the demonstration method.*

b. *Summarize.*

(1) Uses of the demonstration.

(a) To teach manipulative operation.

(b) To teach principles and theories.

(c) To teach operation and functioning.

(d) To teach tactical movements.

(e) To teach procedures.

(f) To teach appreciations.

(2) Forms of the demonstration.

(a) Procedural.

(b) Display.

(c) Field.

(d) Motion pictures.

(e) Skit or playlet.

(3) Points to be observed.

(a) Plan details carefully.

(b) Be alert to the class.

(c) Coordinate explanation and demonstration.

(d) Emphasize safety precautions.

c. *Closing statement.* The demonstration is an effective method of instruction. We *show* as well as *tell* whenever possible. "Seeing is believing," and often it is understanding as well. To show students how to do something by means of a well-planned and well-conducted demonstration is the next best thing to having them do it themselves. An old Chinese proverb says: "A picture is worth a thousand words."

INSTRUCTIONAL UNIT: The Application Stage.

TYPE: Conference.

TIME ALLOTTED: 50 minutes.

CLASSES PRESENTED TO:

TOOLS, EQUIPMENT, AND MATERIALS: None.

PERSONNEL: Instructor, one assistant instructor.

INSTRUCTIONAL AIDS: Slides, Venetian blind strips, or charts of figures 34 through 39; FM 21-6.

REFERENCES: FM 21-5, ch. 7; FM 21-6, chs. 10 and 12.

STUDY ASSIGNMENTS: Same as references.

STUDENT UNIFORM AND EQUIPMENT: Uniform as prescribed in training schedule; notebook and pencil.

TROOP REQUIREMENTS: None.

TRANSPORTATION REQUIREMENTS: None.

1. INTRODUCTION.

a. Reasons.

- (1) Military training emphasizes *doing*.
- (2) In actual practice, a great deal of the instructor's time is spent in supervising the development of student skills and techniques during the application stage of instruction.
- (3) The Army instructor must be able to train men to *do*. He must know and be able to apply the methods used to develop skills and techniques.

Note. Use figure 34, FM 21-6, as a training aid.

b. Objectives and standards.

- (1) To understand the need for the application stage in all instruction and to learn the basic learning processes involved in the development of military skills and techniques.
- (2) To learn the methods used to train men in the development of skills and techniques.
- (3) To learn the guiding principles in the conduct and supervision of practical work.
- (4) To learn how to conduct the critique.

2. EXPLANATION.

Note. Emphasize the need for application in every lesson.

a. How we learn skills and techniques.

- (1) The differences between skills and techniques.
 - (a) A skill is an automatic way of doing a thing. It is learned by doing the same thing over and over correctly until it can be done automatically.
 - (b) A technique is a way of reacting to new situations. It is learned through practice in the application of knowledge or skills to the solution of various problem situations. Technique is acquired through constant practice.

(2) How we learn skills.

- (a) Gaining a concept of the skill.
- (b) Practicing to develop correct form.
- (c) Practicing to make automatic.

Note. Use an overhead projector slide or chart of figure 35, FM 21-6.

(3) How we learn techniques.

- (a) Define the problem.
- (b) Collect data and information.
- (c) Form tentative solution or plan.
- (d) Test solution or plan.
- (e) Apply the solution.

b. Methods of instruction used in the application stage.

(1) Controlled practice (group performance). This method is usually the first step in the students' practical work. This is especially true in subjects which lend themselves to a step-by-step or a "by-the-numbers" presentation. The steps in this method are—

- (a) Explain and demonstrate while the students observe.
- (b) Talk the students through an imitation of the demonstration.
- (c) Correct errors.

Note. Use overhead projector slide or chart of figure 36, FM 21-6.

(2) Independent practice. In this method students work at their own speed and perform the skill or operation as a whole. Independent practice requires careful supervision.

Note. Use overhead projector slide or chart of figure 37, FM 21-6.

(3) Coach-and-pupil. In this method the students, paired off, act alternately as coach and pupil under the general supervision of the instructor.

Note. Use overhead projector slide or chart of figure 38, FM 21-6.

(4) Team practice. The major objective of this method of application is to teach the student to operate as a part of a team. Team practice develops teamwork, leadership, initiative, and confidence. Team practice is usually conducted in two phases.

- (a) First phase (technical). A walk-through practice of technical fundamentals. On-the-spot guidance is usually given.
- (b) Second phase (tactical). All doctrine principles, procedures, techniques, and skills are applied under tactical conditions.

c. Conducting practical work. The application stage should be conducted so as to provide the student with an opportunity to practice.

Here are some points to observe in guiding practical work.

- (1) *Present specific directions.*
- (2) *Repeat instructions when the need arises.*
- (3) *Achievement standards are progressive.*
- (4) *Conditions should be realistic.*
- (5) *Things should be applied as taught.*
- (6) *Indirect assistance is best.*
- (7) *Constant supervision is imperative.*
- (8) *Each step learned before moving on.*

Note. See figure 39, FM 21-6, as a suggested aid.

d. The critique. The application stage should be followed by a critique.

- (1) General considerations.
 - (a) Human relations are important.
 - (b) The exercise should be related to the subject of the course.
 - (c) Specific points should be covered.
 - (d) Fundamentals should be emphasized.
 - (e) Student participation should be encouraged.
 - (f) Instruction, not criticism, should be foremost.
- (2) Steps for the conduct of the critique.
 - (a) Restate the objective of the exercise.
 - (b) Review procedures employed.
 - (c) Evaluate the performance.
 - (d) Control the group in discussion.
 - (e) Summarize.

3. REVIEW.

a. Clear up questions.

b. Summarize.

- (1) How we learn skills and techniques.
- (2) Methods of instruction used in the application stage.
- (3) The conduct of practical work.
- (4) How to conduct the critique.

c. Closing statement. The application of military subject matter cannot be left to chance. The instructor must plan some application of the material he presents as soon after its presentation as possible. Learning by doing is efficient only if it is accompanied by intelligent guidance and supervision to insure correct procedures and progressive learning. In the application stage the student acquires the type of learning that pays off in combat. The application stage should always be followed with a critique to insure that teaching points are emphasized and to make on-the-spot corrections. A properly conducted critique ties the entire lesson into a neat and complete package and stores it indelibly in the students' minds.

INSTRUCTIONAL UNIT: The Examination Stage.

TYPE: Conference.

TIME ALLOTTED: 50 minutes.

CLASSES PRESENTED TO:

TOOLS, EQUIPMENT, AND MATERIALS: None.

PERSONNEL: Instructor and one assistant.

INSTRUCTIONAL AIDS: Slides or Venetian blind strips of figures 40 through 43, FM 21-6.

REFERENCES: FM 21-5, ch. 8; FM 21-6, ch. 11 and 13.

STUDY ASSIGNMENTS: Same as references.

STUDENT UNIFORM AND EQUIPMENT: Uniform as prescribed in training schedule; notebook and pencil.

TROOP REQUIREMENTS: None.

TRANSPORTATION REQUIREMENTS: None.

1. PRESENTATION.

a. Introduction.

(1) Reasons. All instructors are faced with the problem of constructing and giving tests to measure the progress of their students and the effectiveness of their instruction.

(2) Objectives.

(a) Major purposes of testing.

(b) Forms of achievement tests.

(c) Characteristics of a good test.

(d) Administration of tests.

b. Explanation.

(1) Why give tests?

Note. Use figure 40, FM 21-6.

(a) To aid in improving instruction by—

1. Revealing gaps in student learning.

2. Aiding learning (students tend to remember points covered in an examination).

3. Affording the means of evaluating instructional techniques.

(b) To provide an incentive.

(c) To provide a basis for assigning marks.

(d) To furnish a basis for selection and guidance.

(2) Forms of achievement tests.

(a) Oral. Oral questions are used by the instructor in nearly every lesson to spotcheck the effectiveness of his instruction.

Questions: 1. What are the characteristics of a good oral question?

2. What is the procedure for asking a question?

(b) Written. Written tests are of greatest value in measuring the students' information. In most Army training programs, other types of tests should supplement the written test.

- (c) Performance. A performance test is the best way of measuring how well a student can do something.

1. It consists of—

- (a) Directions to the student.
- (b) Directions to the tester.
- (c) Observation check sheet.

Note. Use figure 41, FM 21-6. Explain that this is a formal test given under controlled conditions.

2. Its advantages are—

- (a) It provides a direct means of finding out if a man can do a job.
- (b) It reveals specific difficulties.
- (c) It is easy to give and score.
- (d) Students prefer it.

- (d) Observation. Observation tests and observation techniques are of great importance in Army training.

1. Uses of observation tests.

2. Common errors of observation.

3. Observation techniques.

- (a) Select phases of conduct that provide evidence of the quality being judged.
- (b) Make observations comprehensive.
- (c) Define points to be observed.
- (d) Define standards.
- (e) Make an immediate record.
- (f) Use combined judgments of more than one observer, if possible.
- (g) Use observation check sheets.

Note. Use figure 42, FM 21-6.

- (3) Characteristics of a good test. A good test is—

- (a) Valid.
- (b) Reliable.
- (c) Objective.
- (d) Discriminatory.
- (e) Comprehensive.
- (f) Easy to give and score.

Note. Use figure 43, FM 21-6.

- (4) Procedure in administering tests.

- (a) Have all testing materials ready.
- (b) Train the assistants.
- (c) Provide the best possible testing conditions.
- (d) Give students a good start.

Note. List these points on blackboard or chart.

2. EXAMINATION. Oral questions.

- a. How does an instructor use test results to improve his instruction?
- b. Suppose you wish to measure ability in each of the situations below. What type of test would you use in each case?
 - (1) Ability to time an in-line engine. (Performance.)
 - (2) Possession of desirable attitudes and personality tests. (Observation.)
 - (3) Ability to solve problems using Ohm's law or the WORM formula. (Written.)
 - (4) Ability in dismounted drill. (Performance or observation.)
 - (5) Knowledge of the Articles of War. (Written or oral.)
- c. Why is the performance test considered a highly valid measuring device?
- d. What is the purpose of the performance test?
- e. What are some operations that can be measured by the performance test?

3. REVIEW.

- a. *Ask for questions from the class relative to examinations.*
- b. *Summarize.*
 - (1) Reasons for evaluation.
 - (2) Types of tests.
 - (3) Characteristics of good tests.
 - (4) How to administer tests.
- c. *Make a closing statement.* Frequent, accurate, and properly administered tests are essential. A continuous check on student progress and the effectiveness of instruction is mandatory.

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